

RH25-6A / RH25-12A / RH40-25A / RH40-12A / RH40-25A

THERMOSTATIC BATHS



USER MANUAL – Version 202112TB

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DISCLAIMER

Thank you for selecting our products.

We are sure that you will be completely satisfied with the performance of this new unit entering your laboratory. We invite you to carefully read this user manual and to keep it close to the instrument for convenient and fast consulting. For any possible clarification or any request for assistance please contact either your local Representative or LabTech at the following address:

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INTRODUCTION

About your system

LabTech develops and produces innovative cooling systems used whenever high precise temperature control and rapid temperature changes are required.

LabTech follows the “Green Lab Conditions” regulations by using eco-friendly materials.

By adapting new technologies and innovations to maintain top reliability level worldwide, all production steps are focused to offer high quality and customized solutions to meet any requirement.

The LabTech water chiller line is specially designed for analytical, medical, and industrial use providing an accurate temperature control.

Compliance

Products tested and found compliant with the requirements defined in the EC Council Directive for Electromagnetic Compatibility established by 2014/30/EU as well as Low Voltage Directive (LVD) 2014/35/EU can be identified by the CE mark on the rear of the unit. The testing has demonstrated compliance with the following directives:

- EN 61010-1:2010
- EN 61326-1:2013
- 2014/35/EC
- 2014/30/EC
- 2011/65/EC
- 015/863/EC



WEEE/RoHS

This product is required to comply with the European Union’s Waste Electrical & Electronic Equipment (WEEE) Directive 2011/65/EC. It is marked with the following symbol:



Warranties and Liabilities

Seller warrants the products manufactured and sold by it, to be, for the period of warranty coverage, free from defects of materials or workmanship under normal prior use and service. The period of warranty coverage is specified for the respective products in the respective Seller instruction manuals for those products but shall in no event exceed 1 year from the date of shipment thereof by Seller. Seller's liability under this warranty is limited to such of the above products or parts thereof as are returned, prepaid transportation to Seller's plant, not later than 10 days after the expiration of the period of warranty coverage in respect thereof and are found by Seller's examination to have failed to function properly because of defective workmanship or materials and not because of improper installation or misuse and is limited to, at Seller's election, either (a) repairing and returning the product or part thereof, or (b) improper installation or misuse and is limited to, at Seller's election, either (a) repairing and returning the product or part thereof, or (b) furnishing a replacement product or part thereof, prepaid transportation by Seller in either case. In a event Buyer discovers or learns that a product does not conform to warranty, Buyer shall immediately notify Seller in writing of such non-conformity, specifying in reasonable detail the nature of such non-conformity. If Seller is not provided with such written notification, Seller shall not be liable for any further damages which could have been avoided if Seller had been provided with immediate written notification, this warranty is made and accepted in lieu of all other warranties, express or implied. All other obligations and liabilities of Seller, whether in contract or tort (including negligence) or otherwise, are expressly excluded. In no event shall Seller be liable for any costs, expenses, or damages, whether direct or indirect, special, incidental, consequential, or other, on any claim of any defective product, more than the price paid by Buyer for the product including prepaid return transportation charges.

No warranty is made by Seller of any Seller product which has been installed, used or operated contrary to Seller's written instruction manual or which has been subjected to misuse, negligence or accident or has been repaired or altered by anyone other than Seller or which has been used in a manner or for a purpose for which the Seller product was not designed nor against any defects due to plans or instructions supplied to Seller by or for Buyer.

Conventions

All safety symbols are followed by **WARNING** or **CAUTION**, which indicates the degree of risk for personal injury and/or instrument damage. Cautions and warnings are followed by a description. A **WARNING** is intended to prevent improper actions that could cause personal injury. A **CAUTION** is intended to prevent improper actions that may cause personal injury and/or instrument damage. The following safety symbols may be found on your instrument and/or in this guide.



Burn Hazard: This symbol alerts you to the presence of a hot surface that *could* or *may* cause burn injuries.



Electrical Shock Hazard: This symbol indicates that an electrical shock could or may occur.



Fire Hazard: This symbol indicates a risk of fire or flammability could or may occur.



Chemical safety: This symbol indicates a risk of contact with chemical substances could or may occur.

Contact us

There are several ways to contact LabTech Srl.

To contact Technical Support:

Phone +39 035 576614

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To contact Application Department:

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To contact Sales Department:

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E-mail marketing@labtechsrl.com

To suggest changes to documentation:

Send an e-mail with subject: Technical Publications Editor at customer.care@labtechsrl.com

Safety Rules

General Information

Please carefully read this user manual before starting to use the instrument and follow its prescriptions with the utmost care. This user manual is part of the delivery, hence must be always kept together with the instrument on its working place.

It is imperative that every person operating with this system has read and fully understood this manual. The non-observance of the instructions contained herein, or improper use may involve damages/injuries that are not covered by product liability.

Electrical safety

The instrument must be used within the rated voltage. Prior to use, please check if the wire is aged. In case of aged wires, please contact the after-sales service for inspection. It is forbidden to disassemble the instrument and to connect internal circuit parts, to avoid a short circuit or open circuit.

Fire safety

Numerous reagents are flammable and explosive. When the solvent vapor concentration reaches a certain level, it becomes flammable and could cause fire. The instrument should be kept away from the sources of ignition and high temperature places. If there is solvent pungent smell, carefully check whether there is gas or liquid leakage, and turn off the power.

Chemical safety

The unit is an instrument for organic chemical sample pre-treatment. The involved chemical solvents have harmful effects on the human health. Despite the instrument is fully closed and features full vent design, it is recommended to pay attention to the personal safety during the use. Regular check of liquid waste barrels as well as working conditions of the vent fan are required to avoid the risk of leakage caused by corrosion and to avoid the formation of organic solvent vapors affecting operator's health. If there is a fault, please contact the after-sales service.

Recommendation

Never place the unit in a location where excessive heat, moisture, or corrosive materials are present.

The unit construction provides extra protection against the risk of electrical shock by grounding appropriate metal parts. The extra protection may not function unless the power cord is connected to a properly grounded socket. It is the user's responsibility to assure that a proper ground connection is provided.

Never connect the inlet or outlet fitting to your building water supply or any water pressure source.

Never use flammable or corrosive fluids with this unit.

Do not use automotive antifreeze. Commercial antifreeze contains silicates that can damage the pump seals. Use of automotive antifreeze will void the manufacturer's warranty.

Transport the unit with care. Inclination angle must be less than 60 degrees otherwise the refrigeration system could be damaged. Sudden jolts or drops can damage the refrigeration system.

Pay attention to all warning labels and never remove them.
Never operate a damaged or leaking equipment.
Never operate the unit without the cooling fluid in the reservoir.
Always turn off the unit and disconnect the power cord from the power source before performing any service or maintenance procedure or before moving the unit.
Never operate the equipment with a damaged power cord.
Performance of installation, operation, or maintenance procedure other than those described in this manual may result in a hazardous situation and may void the warranty.
Take care before drain the liquid out, be sure to cool it down below 40°C.
Never remove warning labels.
Never operate damaged or leaking equipment.
Never operate the unit without process fluid in the reservoir.
Observe all warning labels.
Keep clear from the hot reservoir cover and pump connections during continuous operation.

Other Information

Make sure you read and understand all instructions and safety precautions listed in this manual before installing or operating your unit. If you have any questions concerning the operation of your unit or the information in this manual, please contact us.
Transport the unit with care. Sudden jolts or drops can damage the unit components.

General Information

RH SERIES OVERVIEW

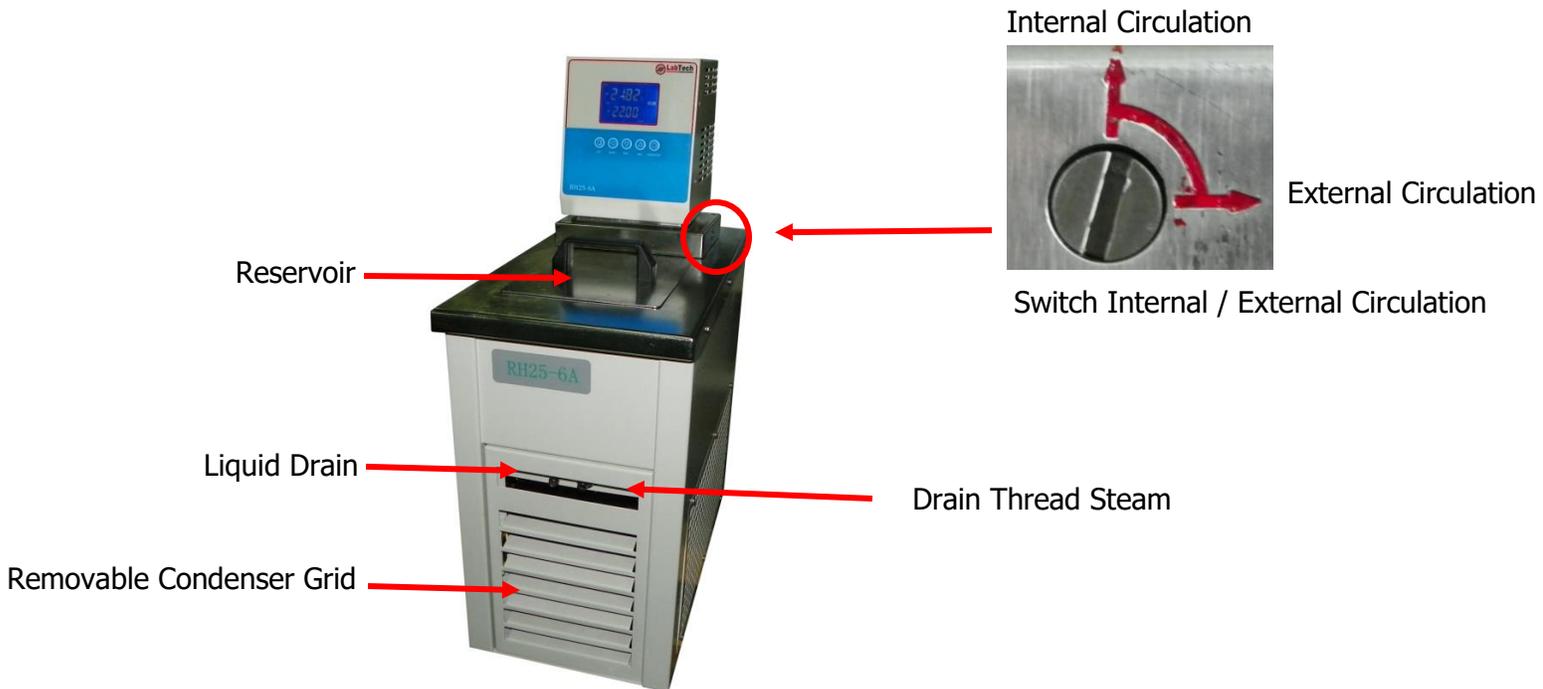
CONTROL PANEL

The control panel consists of the following keys:



FRONT VIEW - RH25-6A/RH25-12A/RH40-12A

The front panel consists of the following parts:



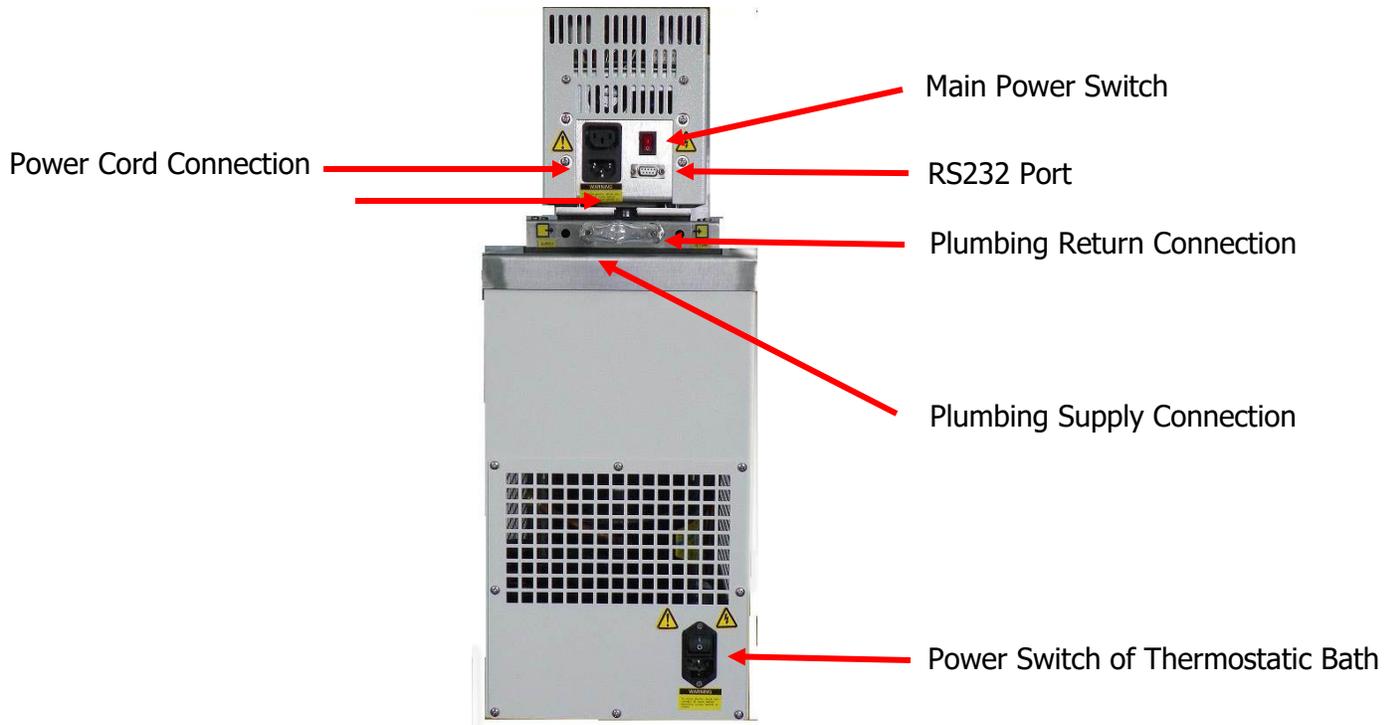
FRONT VIEW - RH25-25A/RH40-25A



NOTE: the drain outlet is in the middle position inside the front air grid. Turn the thread stem beside it to drain the liquid out.

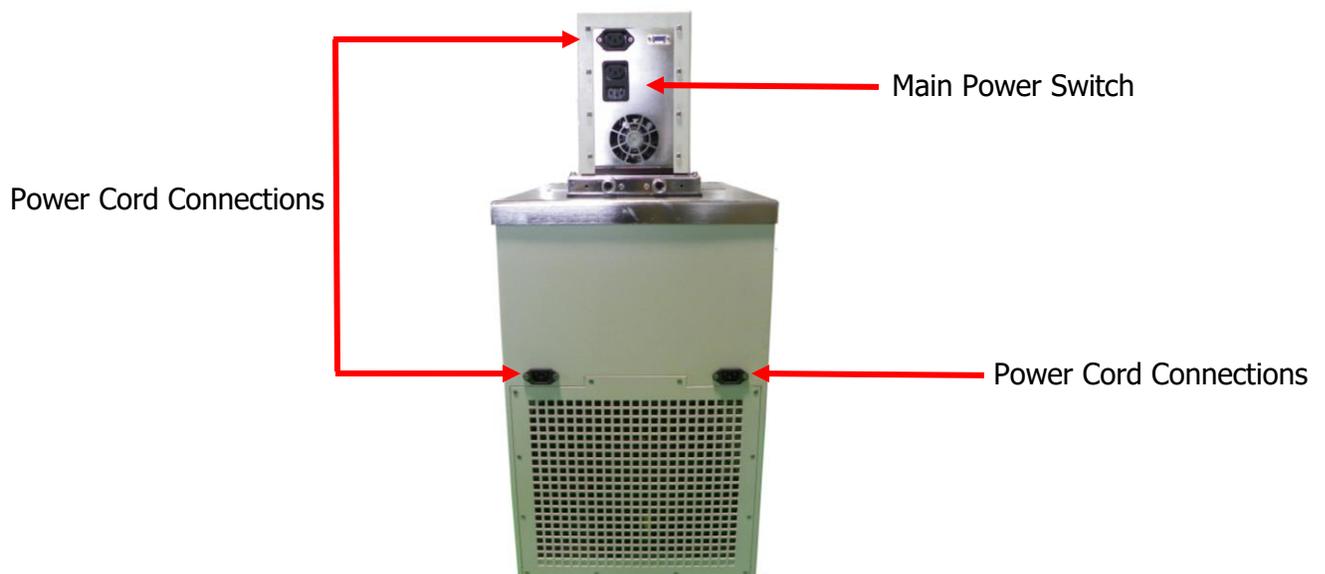
REAR VIEW - RH25-6A/RH25-12A/RH40-12A

The rear panel consists of the following parts:



REAR VIEW - RH25-25A/RH40-25A

The rear panel consists of the following parts:



SPECIFICATION

LABTECH refrigerated and heating circulators are designed to provide precise temperature control of fluids for circulation to external equipment or to be used as a stand-alone bath. Technical specification:

Model		RH25-6A	RH25-12A	RH25-25A	RH40-12A	RH40-25A
Temperature range		-25°C~100°C			-40°C~100°C	
Temperature control mode		PID (LCD)				
Temperature stability		±0,05°C	±0,2°C	±0,2°C	±0,2°C	±0,2°C
Display resolution		0.1°C				
Heating power		2000W				
Cooling capacity	20°C	200W	650W	1000W	550W	800W
	10°C	190W	600W	600W	500W	500W
	0°C	170W	500W	400W	240W	500W
	-10°C	150W	200W	200W	200W	400W
	-20°C	<u>30W</u>	100W	<u>50W</u>	200W	<u>250W</u>
	-35°C	-	-	-	<u>100W</u>	<u>50W</u>
Pump capacity		6L/min	6L/min	18L/min	6L/min	18L/min
Max.pressure		0.4bar	0.4bar	1.4bar	0.4bar	1.4bar
Bath capacity		6L	12L	25L	12L	25L
Bath Dimension (LxWxD) mm		298x149x150	330x300x150	490x300x200	330x300x150	490x300x200
Open Tank Mouth (Bath) (LxWxD) mm		150x130x125	160x300x150	288x248x200	160x300x150	288x248x200
Overall Dimensions (LxWxH) mm		445x235x640	556x406x780	590x410x860	556x406x780	590x410x860

NOTE: the value of temperature stability is tested in standard operating mode.

Installation

Site Requirements

Ambient Temperature Range: 10°C to 35°C (50°F to 95°F)
Relative Humidity Range: 10% to 80% (non-condensing)
Operating Altitude: Sea Level to 8000 feet (2438 meters)

Never place the unit in a location where excessive heat, moisture, or corrosive materials are present.

Positioning the instrument

The unit has an air-cooled refrigeration system. The air is drawn through the front of the unit and discharged through the rear and side panels. The unit must be properly positioned so that the intake and discharge are not impeded. A minimum clearance of 1 meter (nearly 3 feet) on all vented sides is necessary for adequate ventilation. Inadequate ventilation will cause a reduction in cooling capacity and, in extreme cases, compressor failure.

Excessively dusty areas should be avoided, and a periodic cleaning schedule should be done (see Chapter Maintenance).

Electrical Requirements

The unit provides extra protection against the risk of electrical shock by grounding appropriate metal parts. The extra protection may not function unless the power cord is connected to a properly grounded socket. It is the user's responsibility to assure a proper ground connection is provided.

The following power options are available:

Unit	Voltage/V	Frequency /Hz	Phase	Circuit Capacity/A	IP Degree
RH25-6A	230	50	1	10	20
RH25-12A	230	50	1	12	20
RH25-25A	230	50	1	14	20
RH40-12A	230	50	1	13	20
RH40-25A	230	50	1	15	20

NOTE: connect the unit to a socket with earthing contact (PE –protective earth)!

Plumbing Requirements

The plumbing connections are located on the rear of the unit and labelled "SUPPLY" and "RETURN". The connections are 8.5mm (1/3 inch) female pipe thread. Remove the plastic protective caps from both plumbing connections. Install the barbed adapters to these connections.

Recommended tubing:

	Temperature range	Length
CR® tubing 8 mm inner dia.	-20°C to 120°C	2m
CR® tubing 10 mm inner dia.	-20°C to 120°C	2m
Viton tubing 8 mm inner dia.	-50°C to 200°C	2m
Viton tubing 10 mm inner dia.	-50°C to 200°C	2m
Insulation tubing 8 mm or 10 mm inner dia.	-50°C to 100°C	2m

Select suitable tubing and fittings compatible with bath fluid and temperature range. Make sure that the tubing is securely attached. Avoid sharp bending in the tubing and maintain a sufficient distance from surrounding wall. Regularly check the tubing for material defects (e.g. for cracks) Preventive maintenance: replace the tubing from time to time.

Fluid Requirements

Never use flammable or corrosive fluids with this unit. Do not use automotive antifreeze. Commercial antifreeze contains silicates that can damage the pump seals. Use of automotive antifreeze will void the warranty.

Fluids should be pure, contain none of impurity such as grains. Otherwise, the impurity will be prone to damage the pump. Use of unpurged fluids will void the warranty. Fluids should be replaced every month.

The chart below helps the selection of the fluid for your application.

Fluid Description	Temp. Range
Deionized Water	5°C~90°C
Deionized Water 50% / Ethylene Glycol 50%	-30°C~50°C
Ethyl Alcohol	-50°C~-30°C

NOTE: please contact LabTech before using other than recommended bath fluids. LabTech takes no responsibility for damages caused by the selection of an unsuitable bath fluid.

Water Quality

Facility Water	Permissible (PPM)	Desirable (PPM)
Microbiologicals (Algae, bacteria, fungi)	0	0
Inorganic Chemicals		
Calcium	<40	<0.6
Chloride	<250	<25
Copper	<1.3	<1.0
0.020 ppm if fluid in contact with aluminum		
Iron	<0.3	<0.1
Lead	<0.015	0
Magnesium	<12	<0.1
Manganese	<0.05	<0.03
Nitrates\Nitrites	<10 as N	0
Potassium	<20	<0.3
Silicate	<25	<1.0
Sodium	<20	<0.3
Sulfate	<250	<50
Hardness	<17	<0.05
Total Dissolved Solids	<50	<10

Filling

Maximum filling level is 20mm below the top of reservoir.

Minimum liquid depth is enough to fully cover the heater, pump and temperature sensor.

If the proper fluid level is not maintained the heater coil may become exposed and possibly be damaged.

Cover the reservoir when there is no need to open it.

NOTE: the unit has overheat protection. Failure due to low liquid level or failure to properly immerse the heater may result in heater burnout. While operating, do not allow the heater to contact any potentially flammable materials, as a fire hazard may result.

Draining

Switch off both circulator and chiller.

Take off the air vent.

Unscrew drain thread stem and empty the bath tank.

Tighten the drain thread stem.

NOTE: exercise caution when emptying hot bath fluids!

Check the temperature of the bath fluid prior to drain (by switching the unit on for a short moment, for example).

Be sure to cool the liquid temperature down to below 40°C before draining it out; take care when draining hot liquid out.

Internal circulation

Switch off both circulator and chiller.
Remove the plastic protective caps from both plumbing connections.
Install the barbed adapters to these connections.
Connect the plumbing return connection and plumbing supply connection directly.
Turn the "I" switch valve located on the right side of the unit to have the dot point at 80 degrees.

External circulation

Switch off both circulator and chiller.
Remove the plastic protective caps from both plumbing connections.
Install the barbed adapters to these connections.
Connect the fitting "SUPPLY" to the hose from the inlet of the instrument to be cooled. Connect the fitting "RETURN" to the hose from the outlet of the instrument. Clamp all connections with hoops.
Turn the "I" switch valve to 0 degree.

NOTE: it is important to keep the distance between the unit and the instrument being cooled as short as possible. Tubing should be straight and without bends.

Start/Stop

The circulator and chiller have separate power plugs; before starting the units connect the sockets of circulator and chiller by the cable (provided) recheck all the electricity connections, plumbing connections and the liquid level. Prepare more suitable liquid if open bath circulation is needed.

NOTE: when the unit is switched off, it should not be restarted within 10 minutes to allow the internal pressures to equalize. System damage could result if this waiting period is not observed.

Operation

Before starting the unit, double check all electrical and plumbing connections and make sure the unit has been properly filled with bath fluid.

Switch on the unit, the LCD screen lights up, "dH-01" and "In-Pt" will be displayed, 2s later temperature limit will be displayed and enter into normal state then.

Change Temperature Setpoint

Press  to set the temperature, "sp" and its value will be displayed. Revise the value to the desired temperature by pressing , , . Press  to save and quit.

Note: in temperature set interface, if there is no operation within 1 minute, the controller will go back to normal state.

Run/Stop

After set the temperature, in stop status, press  to run the unit. In running status, press  to stop the unit. During the cooling mode, the snow symbol will blink for 3 minutes, after that, the unit starts to cool down the liquid.

Flow Rate Adjustment

This function is only available for models RH25-25A, RH40-25A.

The flow rate of the pump can be adjusted by changing the pump motor rotation speed. Factory pre-set motor speed is 3000 rpm (max. 6000 rpm). Press and hold  for 3s, "Lc" will be displayed, enter 101 to change the motor speed.

ALARMS

High temperature alarm: when the actual temperature is 5°C or higher than the setpoint temperature, "ALM" will be displayed and the buzzer sounds. Stop the buzzer by clicking any key.

Low temperature alarm: when the actual temperature is 5°C or lower than the setpoint temperature, "ALM" will be displayed and the buzzer sounds. Stop the buzzer by clicking any key.

Liquid level alarm: when the bath liquid level is too low, "-BRC-" will be displayed and the buzzer sounds. Stop the buzzer by clicking any key.

Malfunction Alarm

This function is only available for models RH25-25A, RH40-25A

When the temperature sensor or controller have problem, "-----" & "ALM" will be displayed and the buzzer sounds. The controller will stop and close all outputs. Please check the sensor connection carefully.

Preventive Maintenance

Bath Cleaning

After the initial installation, please clean the bath and plumbing tube; periodically inspect and clean the bath and plumbing tube. The cleaning frequency depends on the operating environment.

To clean the bath tank and the immersed parts of the circulator use water and a mild detergent (e.g., soap suds). Clean the outside of the unit using a wet cloth and a mild detergent.

Prevent humidity from entering the circulator.

Periodically inspect the fluid inside the reservoir. If cleaning is necessary, flush the reservoir with a cleaning fluid compatible with the circulating system and the cooling fluid.

The cooling fluid should be replaced periodically. Replacement frequency depends on the operating environment and running time.

Before changing the cooling fluid ensure that it is at a safe handling temperature.

When fittings must be changed or the chiller is not used for a long period, be sure to drain all liquid out of the unit. Shut down the unit at first, then put a cup on the ground and disconnect the fitting from the instrument cooled. Then let the fluid in the tank flow out into the cup and disconnect the fitting on the Thermostatic Bath. Before positioning the unit in the storage be sure the drain tap is closed.

Condenser Cleaning

For proper operation, the unit needs to pull a substantial amount of air through a condenser. A buildup of dust or debris on the fins of the condenser will lead to a loss of cooling capacity.

The lower front of the unit has a one-piece grid assembly.

Gently remove it using hands. Use care not to scratch the paint.

Periodic vacuuming of the condenser fins is necessary. The cleaning frequency depends on the operating environment. After the initial installation we recommend a monthly visual inspection of the condenser. After several months the cleaning frequency will be established.

Use care when cleaning the condenser fins as they can easily bend.

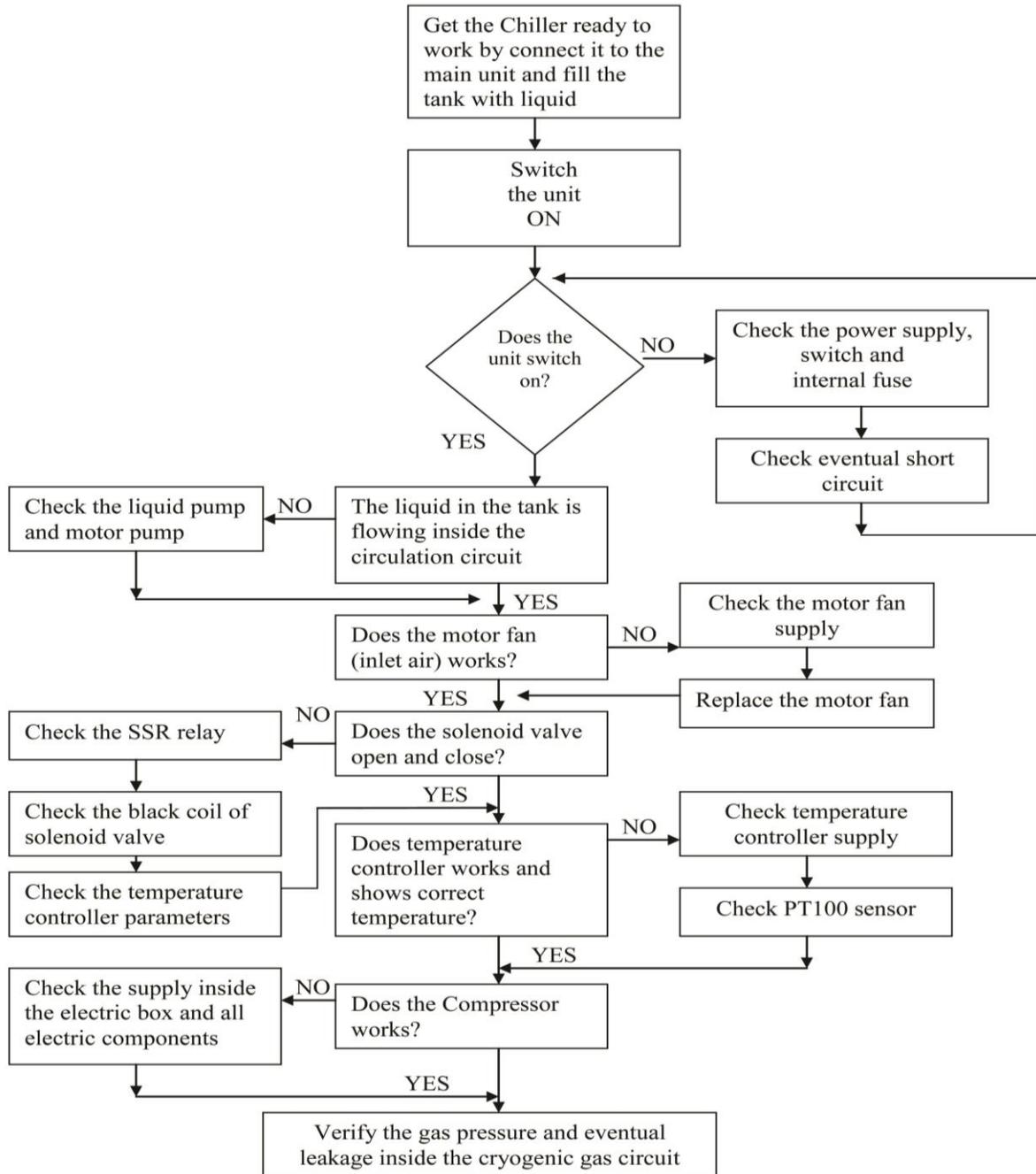
Filter Replacement

If the water circuit of the unit is equipped with a filter system, please change the filter cartridge periodically.

Troubleshooting

FLOWCHART

WATER CHILLERS CHECK-UP PROCEDURE



UNIT DOES NOT START

Check the cord; ensure it is plugged in.

Check the position of the circuit breaker on the front of the unit. It has to be in the upper position.

Check the voltage of power supply.

NOTE: several starting attempts may be necessary on units with a Low Flow Switch and configured to shut down with a low flow fault.

UNIT DOES NOT CIRCULATE FLUID

Check the water level in the reservoir. Fill, if necessary.

Check the instrument being cooled for restrictions in the cooling line.

Check the pump strainer.

Check the pressure gauge, adjust the relief valve as necessary.

INADEQUATE TEMPERATURE CONTROL

Verify the setpoint.

If the temperature continues to rise, make sure the heat load of the instrument to be cooled does not exceed the rated specification.

Make sure the air intake and discharge are not impeded and the ambient temperature does not exceed +35°C.

Make sure the condenser is free of dust and debris.

LEAKAGE

Due to vapor contained in the atmosphere, condensation may occur outside the tubes when the temperature of the refrigeration system is lower than the ambient: specially when the humidity of the atmosphere is high, while the set point is lower, the condensation will be more evident. To avoid such results, a dehumidifier should be used or the temperature set higher.

Declaration of Conformity

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**EU/UE
DICHIARAZIONE DI CONFORMITÀ
DECLARATION OF CONFORMITY
DÉCLARATION DE CONFORMITÉ
KOFOMITÄTSEKLRÄUNG
DECLARACIÓN DE CONFORMIDAD**



Noi
We
Nous
Wir
Nosotros

LabTech s.r.l.

(nome del produttore) (manufacturer's name) (nom du fournisseur) (Name des Anbieters) (Nombre del productor)

Via Fatebenefratelli, 1/5 24010 SORISOLE (BG) – ITALY

(indirizzo) (address) (adresse) (Anschrift) (Dirección)

dichiaro sotto la nostra unica responsabilità che il prodotto
declare under our sole responsibility that the product/system
déclarons sous notre seule responsabilité que le produit/système
erklären in alleiniger Verantwortung, dass das Produkt/System
declaramos bajo nuestra exclusiva responsabilidad que el producto/sistema

WATER CHILLER

(modello) (model) (modèle) (Modell) (modelo)

al quale questa dichiarazione fa riferimento, è conforme con le seguenti norme
to which this declaration relates is in conformity with the following standards
auquel se réfère cette déclaration est conforme aux normes
auf das sich diese Erklärung bezieht, mit der/den folgenden Normen
el modelo al que se refiere esta declaración, es conforme a las siguientes reglas

IEC 62321:2008

(titolo e/o numero e data) (title and/or number and date) (titre et/ou no et date) (Titel und/oder Nummer und Datum) (título y/o el número y la fecha)

Secondo le prescrizioni della(e) Direttiva(e):
Following the provisions of Directive(s):
conformément aux dispositions de(s) Directive(s):
Gemäß den Bestimmungen der Richtlinie(n) :
En conformidad con las especificaciones de las directivas:

2011/65/EC

(titolo e/o numero della direttiva) (title and/or number of directive) (titre et/ou no du directive) (Titel und/oder Nummer von Anweisung) (título y/o número de la Directiva)

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Mr. Diego Cortesi
General Manager
08/04/20

Spare Parts List

P/N	DESCRIPTION
DDL-JDQ008	Electromagnetic relay
DDL-KG002	Power switch
SBJJ-JL002	Castor
SDL-CGQ004	Temperature sensor
SDL-CZ011	Power switch with socket
SDL-DJ009	Motor
SDL-DJ015	Motor fan
SDL-DJ011	Motor fan
SDL-DJ033	Motor fan in Controller
SDL-DYB015	Display screen
SDL-DYB016	Power supply board
SDL-YWKG001	Liquid level switch
SFL-JRG005	Heating tube
SZL-LNQ008	Condenser
SZL-LNQ004	Condenser
SZL-YSJ009	Compressor
SZL-YSJ047	Compressor
SZL-YSJ046	Compressor
SDL-CZ006	Power socket-male
SDL-CZ007	Power socket-female
SDL-DY001	DC brushless motor
SDL-DYB022	Temperature Controller
SZL-DCF001-1	Solenoid valve body
SZL-DCF001-2	Solenoid valve coil
SZL-PTF010	Thermostatic expansion valve