
Operator's Manual

13 Liter Refrigerated Open Bath



CE

Table of Contents

Introduction	2
General Safety Information	2
Safety Recommendations	3
Regulatory Compliance & Testing	3
Unpacking Your Refrigerated Open Bath	4
Contents	4
Controls.....	4
Installation	5
General Site Requirements	5
Immersion Circulator Mounting/Positioning	5
Adding Liquid to the Reservoir	5
Electrical Power	6
Normal Operation.....	6
Routine Maintenance & Troubleshooting.....	7
Cleaning the Bath	7
Air Vents	7
Troubleshooting Chart	7
Technical Information.....	8
Performance Specifications	8
Reservoir Fluids	9
Equipment Disposal (WEEE Directive)	10
Bath Fluids.....	10
Service and Technical Support	11
Warranty.....	11

Introduction

Thank you for choosing this Refrigerated Open Bath. It is designed to work in conjunction with an immersion circulator or other source of controlled heating circulation. It is ideal for applications where bath temperature near or below ambient are required. The Refrigerated Open Bath is not a controlled cooling source; it is designed to run at maximum cooling.

Standard features include:

- Continuous cooling to 0°C
- 0° to 150°C working temperature range
- Up to 400 watts of cooling at 20°C
- Insulated 13 liter stainless steel tank
- Cool Command™ refrigeration system

General Safety Information

When installed, operated, and maintained according to the directions in this manual and common safety procedures, your Refrigerated Open Bath should provide safe operation. Please ensure that all individuals involved in the installation, operation, or maintenance of this Refrigerated Open Bath read this manual thoroughly prior to working with the unit.

	This symbol marks chapters and sections of this instruction manual that are particularly relevant to safety. When attached to the unit, this symbol draws attention to the relevant section of the instruction manual.
	This symbol indicates that hazardous voltages may be present.
	This symbol marks information that is particularly important.
	This symbol indicates alternating current.
	This symbol on the Power Switch / Circuit Breaker indicates that it places the unit into a fully powered state.
	This symbol on the Power Switch / Circuit Breaker indicates that it disconnects power to the unit.
	This symbol indicates a protective conductor terminal.
Read all instructions pertaining to safety, set-up, and operation. Proper operation is the users' responsibility.	

Safety Recommendations

To prevent injury to personnel and/or damage to property, always follow your workplace's safety procedures when operating this equipment. You should also comply with the following safety recommendations:

	WARNING: • Always connect the power cord on this Refrigerated Open Bath to a grounded (3-prong) power outlet. Make certain that the outlet is the same voltage and frequency as your unit. • Never operate the Refrigerated Open Bath with a damaged power cord. • Always turn the Refrigerated Open Bath OFF and disconnect mains power before performing any maintenance or service.
	WARNING: • Never operate the Refrigerated Open Bath without bath fluid in the reservoir. Periodically check the reservoir to ensure that the liquid depth is within acceptable levels. Always refill the reservoir using the same bath fluid type that is already in the reservoir. • Use compatible bath fluids only. • Always drain all fluid from the reservoir before moving or lifting your Refrigerated Open Bath. Be sure to follow your organization's procedures and practices regarding the safe lifting and relocation of heavy objects.
	WARNING: Always allow the bath fluid to return to ambient temperature before draining.
	WARNING: It is the user's responsibility to properly decontaminate the unit in the event hazardous materials are spilled on exterior or interior surfaces. Consult manufacturer if there is any doubt regarding the compatibility of decontamination or cleaning agents.

Regulatory Compliance & Testing

CE

EC Low Voltage Directive 2006/95/EC

EC Electromagnetic Compatibility Directive 2004/108/EC

IEC 61010-1-2001

IEC 61010-2-2001

IEC 61326:2005 / EN 61326 : 2006

Unpacking Your Refrigerated Open Bath

Your Refrigerated Open Bath is shipped in a special carton. Retain the carton and all packing materials until the unit is completely assembled and working properly. Set up and run the unit immediately to confirm proper operation. Beyond one week, your unit may be warranty repaired, but not replaced. If the unit is damaged or does not operate properly, contact the transportation company, file a damage claim, then contact the company where your unit was purchased.



WARNING: Keep unit upright when moving. Be sure to follow your company's procedures and practices regarding the safe lifting and relocation of heavy objects.

Contents

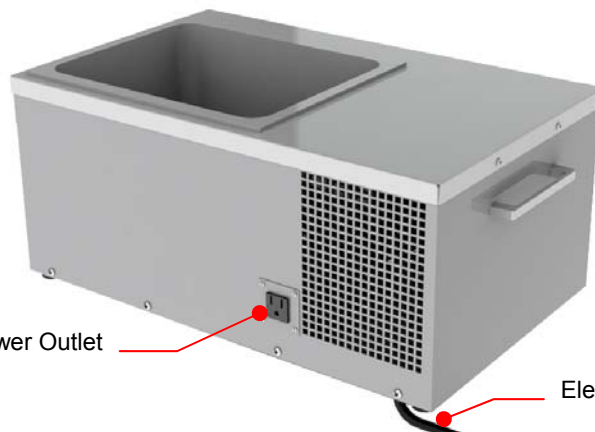
The items included with your Refrigerated Open Bath are:

- Refrigerated Open Bath
- Operator's Manual
- Power Cord

Controls



Power Switch / Circuit Breaker



Auxiliary Power Outlet

Electrical Power Cord

Installation

Your Refrigerated Open Bath is simple to setup and install. The only tool required is a container for adding a suitable fluid to the bath reservoir.

General Site Requirements

Locate your Refrigerated Open Bath on a level surface free in an area that is free from drafts and wide ambient temperature variations, such as near heater or air conditioning vents. Do not place it where there are corrosive fumes, excessive moisture, or in excessively dusty areas.

Position the unit to allow for unobstructed air flow through the front and rear vents. A space of at least 4 inches (10.2 cm) should be provided behind the unit.

Avoid voltage drops by using properly grounded power outlets wired with 14 gauge or larger diameter wire and if possible, be close to the power distribution panel. The use of extension cords is not recommended; this will reduce the potential for problems caused by low line voltage.

Immersion Circulator Mounting/Positioning

When using Refrigerated Open Bath with an immersion circulator, it should be secured to the side of the bath reservoir and/or positioned to provide circular fluid flow in the reservoir. An auxiliary outlet is supplied on the rear of the Refrigerated Open Bath as a convenient source of electrical power.



WARNING: Be sure that the voltage and frequency of the immersion circulator matches that of your Refrigerated Open Bath when using the Bath's auxiliary power outlet.

Adding Liquid to the Bath Reservoir



WARNING: Fill reservoir with fluid before applying power to the unit.



WARNING: Read the safety data sheet for the bath fluid being used carefully before filling reservoir.
WARNING: See *Technical Information* in the rear of this manual for a list of compatible liquids.



CAUTION: Fumes from acidic solutions may cause corrosion of the stainless steel reservoir. Care should be taken to maintain a neutral pH at all times.

Fill bath so that the liquid level is approximately 2 inches (5.1 cm) from the top for best refrigeration performance. Be sure to allow for the fluid displacement that will result when equipment or samples are placed in the reservoir.

The use of distilled water may be used when bath temperatures will be from 10° to 90°C. For temperatures below 10°C, a mixture of laboratory grade ethylene glycol and distilled water is recommended.

A few drops of polyclean Algaecide (part number 004-300040) should be used to help prevent algae formation.



WARNING: Always drain all fluid from the reservoir before moving or lifting your Refrigerated Open Bath. Be sure to follow your organization's procedures and practices regarding the safe lifting and relocation of heavy objects.



WARNING: To avoid the potential for burns, allow the Refrigerated Open Bath to return to ambient temperature before cleaning or performing any maintenance.

Electrical Power

	WARNING: The Refrigerated Open Bath's power cord must be connected to a properly grounded electrical receptacle. Make certain that this electrical outlet is the same voltage and frequency as your unit. The correct voltage and frequency for your Refrigerated Open Bath are indicated on the identification label on the rear of the unit.
	CAUTION: The use of an extension cord is not recommended. If one is necessary, it must be properly grounded and capable of handling the total wattage of the unit. The extension cord must not cause more than a 10% drop in voltage to the unit.

Plug the Refrigerated Open Bath's power cord into a properly grounded electrical outlet of the correct voltage and frequency.

Normal Operation

	CAUTION: For optimal performance, circulation should be initiated before turning power to the Refrigerated Open Bath ON.
	CAUTION: Refrigeration is normally required only when operating at bath temperatures below 40°C. Refrigeration must be turned off if the reservoir fluid is being maintained at a temperature above 55°C.
	NOTE: The Refrigerated Open Bath operates at maximum cooling performance.
	IMPORTANT: To protect the Refrigerated Open Bath's compressor from damage, the unit incorporates a special safety switch that delays compressor startup for 10 minutes whenever power is applied. This 10 minute delay will occur even when power is only momentarily disrupted.

Turn power to the immersion circulator or other circulating heat source ON and set the device to the desired temperature.

Place the Power Switch / Circuit Breaker on the front of the Refrigerated Open Bath in the ON position.

Routine Maintenance & Troubleshooting



WARNING: Hazardous voltages may be present. Disconnect power before performing maintenance.

Cleaning the Bath

Thoroughly clean the bath before each use. Use only mild soap and water when cleaning. Do not use steel wool as damage to the unit may result. Non-steel scouring pads are acceptable.

The entire unit is housed in a tough, well-insulated stainless steel casing that is corrosion and chemical resistant.

Air Vents

The unit's front and rear air vents should be inspected regularly for the accumulation of dust and cleaned as required.

Troubleshooting Chart

Problem	Cause	Corrective Action
No power to unit	Electrical power disconnected Power Switch / Circuit Breaker in OFF position Compressor overload switch has tripped	Check that electrical cord is secure and plugged into an operating electrical outlet. Place Power Switch / Circuit Breaker in ON position. Allow approximately 10 minutes for unit to restart.
No or insufficient cooling	Excessive heat load Blocked air flow High ambient temperature Improper line voltage and/or frequency	Check and correct as required. Refrigeration is normally required only when operating at bath temperatures below 40°C. Refrigeration must be turned off if the reservoir fluid is being maintained at a temperature above 55°C Check air vents for blockage. Check that air flow around unit is not restricted and that room temperature does not exceed 95°F / 35°C. Verify that Mains voltage during start cycle is within 10% of rated voltage.
Gradual loss of cooling	Blocked air flow	Check air vents for blockage.
Compressor shakes, stalls, or continually restarts	Compressor cycling or overload	Check air vents for blockage. Check that air flow around unit is not restricted and that room temperature does not exceed 95°F / 35°C. Verify that Mains voltage during start cycle is within 10% of rated voltage. Check compressor fan for operation (listen for fan noise, check airflow through unit).

Technical Information

Performance Specifications

Working Temperature:	0° to 150°C
Temperature Control:	Continuous cooling to 0°C
Cooling Capacity:	Up to 400 watts @ 20°C
Reservoir Capacity:	13 liters
Tank:	Insulated stainless steel
Working Access (L x W x D):	9 x 11.75 x 7.75 inches / 22.9 x 29.8 x 19.7 cm
Overall Dimensions (L x W x H):	13.5 x 22 x 10 inches / 34.3 x 55.9 x 25.4 cm
Electrical Requirements:	60 Hz: 120V, 60Hz, 3.0A 50 Hz: 240V, 50Hz, 1.5A

Specifications subject to change without notice.

Environmental Conditions	Indoor use only
Maximum Altitude:	2000 meter
Operating Ambient:	5° to 35°C (41° to 95°F)
Relative Humidity:	80%, non-condensing
Installation Category:	II
Pollution Degree:	2

Reservoir Fluids

	WARNING: Do not operate unit with any potentially flammable materials, as a fire hazard may result.
---	--

Fluid Description	Specific Heat			Normal Temperature Range	Extreme Temperature Range
	@ Fluid Temperature	BTU/lb°F	KJ/Kg°C		
distilled water	50°C	1.00	4.18	10° to 90°C	2° to 100°C
polyclear MIX 30	50°C	1.00	4.18	15° to 90°C	2° to 100°C
polycool HC -50	-30°C	0.62	2.59	-50° to 100°C	-62° to 118°C
polycool EG -25 (50/50 mix with distilled H ₂ O)	-20°C	0.78	3.26	-25° to 100°C	-30° to 115°C
polycool EG -25 (30/70 mix with distilled H ₂ O)	0°C	0.89	3.72	0° to 95°C	-15° to 107°C
polycool PG -20 (50/50 mix with distilled H ₂ O)	-10°C	0.83	3.47	-20° to 100°C	-30° to 115°C
polycool PG -20 (30/70 mix with distilled H ₂ O)	5°C	0.92	3.85	5° to 90°C	-10° to 107°C
polycool MIX -25 (50/50 mix with distilled H ₂ O)	-20°C	0.78	3.26	-25° to 100°C	-30° to 115°C
polycool MIX -25 (30/70 mix with distilled H ₂ O)	0°C	0.89	3.72	0° to 95°C	-15° to 107°C

	WARNING: DO NOT USE THE FOLLOWING LIQUIDS - Automotive antifreeze with additives** - Hard tap water** - Deionized water with a specific resistance > 1 meg ohm - Any flammable fluids - Concentrations of acids or bases - Solutions with halides: chlorides, fluorides, bromides, iodides or sulfur - Bleach (Sodium Hypochlorite) - Solutions with chromates or chromium salts - Glycerine - Syltherm fluids ** At temperatures above 40°C, additives or mineral deposits may develop. If deposits are allowed to build up, the unit may overheat and fail. Higher temperatures and higher concentrations of additives will hasten deposit build up.
---	---

	CAUTION: Fumes from acidic solutions may cause corrosion of the stainless steel reservoir. Care should be taken to maintain a neutral pH at all times.
---	--

Stay within the fluid's normal range for best temperature stability and low vaporization. At fluid's high temperature extreme:

- A fume hood may be required to prevent the buildup of vapors inside the room.
- Fluid lost from vapor will have to be frequently replenished.
- Caution must be taken to stay well below the fluid's flashpoint.

Equipment Disposal (WEEE Directive)



or



This equipment is marked with the crossed out wheeled bin symbol to indicate it is covered by the Waste Electrical and Electronic Equipment (WEEE) Directive and is not to be disposed of as unsorted municipal waste. **Any products marked with this symbol must be collected separately, according to the regulatory guidelines in your area.**

It is your responsibility to correctly dispose of this equipment at lifecycle-end by handing it over to an authorized facility for separate collection and recycling. It is also your responsibility to decontaminate the equipment in case of biological, chemical and/or radiological contamination, so as to protect the persons involved in the disposal and recycling of the equipment from health hazards. By doing so, you will help to conserve natural and environmental resources and you will ensure that your equipment is recycled in a manner that protects human health.

Requirements for waste collection, reuse, recycling, and recovery programs vary by regulatory authority at your location. Contact your local responsible body (e.g., your laboratory manager) or authorized representative for information regarding applicable disposal regulations.

Bath Fluids

Circulating Bath Fluids	Quantity	Part Number
polyclean Algaecide	8 oz / 236 ml	004-300040
polyclean Algaecide	Twelve 8 oz / 236 ml bottles	004-300041
polyclean Bath Cleaner	8 oz / 236 ml	004-300050
polyclean Bath Cleaner	Twelve 8 oz / 236 ml bottles	004-300051
polycool EG -25 (ethylene glycol)	1 gal / 4.5 liter	060340
polycool PG -20 (propylene glycol)	1 gal / 4.5 liter	060320
polycool HC -50 (water-based heat transfer fluid)	1 gal / 4.5 liter	060330
polycool MIX -25 (50/50 blend polycool EG -25 / H ₂ O plus polyclean algaecide)	Five 0.5 gal / 2.27 liter	004-300060
polyclear MIX 30 (distilled water plus polyclean algaecide)	Five 0.5 gal / 2.27 liter	004-300062

Service and Technical Support

If you have followed the troubleshooting steps outlined previously and your Refrigerated Open Bath still fails to operate properly, contact the supplier from whom the unit was purchased. Have the following information available for the customer service person:

- Model, Serial Number, and Voltage (from back panel label)
- Date of purchase and purchase order number
- Supplier's order number or invoice number
- A summary of the problem

Warranty

The manufacturer agrees to correct for the original user of the product, either by repair (using new or refurbished parts), or at the manufacturer's election, by replacement (with a new or refurbished product), any defects in material or workmanship which develop during the warranty period. The standard warranty is twenty-four (24) months after delivery of the product. In the event of replacement, the replacement unit will be warranted for the remainder of the original warranty period or ninety (90) days, whichever is longer. For purposes of this limited warranty, "refurbished" means a product or part that has been returned to its original specifications. In the event of a defect, these are your exclusive remedies.

If the product should require service, contact the manufacturer's/supplier's office for instructions. When return of the product is necessary, a return authorization number is assigned and the product should be shipped, transportation charges pre-paid, in either its original packaging or packaging affording an equal degree of protection to the indicated service center. To insure prompt handling, the return authorization number must be placed on the outside of the package. A detailed explanation of the defect should be enclosed with the item.

The warranty shall not apply if the defect or malfunction was caused by accident, neglect, unreasonable use, improper service, acts of God, modification by any party other than the manufacturer, or other causes not arising out of defects in material or workmanship.

EXCLUSION OF IMPLIED WARRANTIES. THERE ARE NO WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THOSE OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE WHICH EXTEND BEYOND THE DESCRIPTION AND PERIOD AS STATED IN THE OPERATOR'S MANUAL INCLUDED WITH EACH PRODUCT.

LIMITATION ON DAMAGES. THE MANUFACTURER'S SOLE OBLIGATION UNDER THE WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF A DEFECTIVE PRODUCT AND THE MANUFACTURER SHALL NOT, IN ANY EVENT, BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND RESULTING FROM USE OR POSSESSION OF THIS PRODUCT.

Some states do not allow: (A) limitations on how long an implied warranty lasts; or (B) the exclusion or limitation of incidental or consequential damages, so the above limitations or exclusions may not apply to you. This warranty gives you specific legal rights and you may have other rights that vary from state to state.

Manufactured by:

PolyScience

6600 W. Touhy Avenue Niles, IL 60714 U.S.A.
1-800-229-7569 • 1-847-647-0611
www.polyscience.com