

4-INS-170



INSTALLATION, OPERATION AND CARE MANUAL

REMEMBER TO COMPLETE THE ONLINE
WARRANTY REGISTRATION TO
RECEIVE YOUR FULL TWO YEAR WARRANTY.

WARRANTY

All Scientific equipment comes with a standard ONE year warranty, The 1 Year Extended Warranty is only valid for customers who have registered their warranty online at www.scientific.co.za within the first year after making their purchase.

MANUFACTURED
IN SOUTH AFRICA





ALL SCIENTIFIC EQUIPMENT COMES WITH A TWO
YEAR WARRANTY ON COMPONENTS AND
DEFECTIVE WORKMANSHIP - Ts & Cs APPLY.

REGISTER ONLINE TODAY

- Register your warranty on-line at www.scientific.co.za today and learn how to get the best out of your Scientific product.

NO WEB ACCESS?

- If you do not have access to the Web, register by completing this form and Email it to the Scientific head office in South Africa. Email: sales@scientific.co.za

ONLY COMPLETE IF YOU DO NOT HAVE WEB ACCESS

Company _____

Name _____

Surname _____

Telephone _____

Cellphone _____

Email Address _____

Country _____

Postal address _____

Scientific products purchased _____

Product Code (see box label) _____

Serial number (see back of machine) _____

INTENDED USE

- | | | |
|---------------------------------------|--|---|
| <input type="checkbox"/> Agriculture | <input type="checkbox"/> Genetics | <input type="checkbox"/> Pharmaceutical Physics |
| <input type="checkbox"/> Automotive | <input type="checkbox"/> Industrial | <input type="checkbox"/> Power Generation |
| <input type="checkbox"/> Biochemistry | <input type="checkbox"/> Medical | <input type="checkbox"/> Special Metals |
| <input type="checkbox"/> Botony | <input type="checkbox"/> Microbiology | <input type="checkbox"/> Sugar |
| <input type="checkbox"/> Chemistry | <input type="checkbox"/> Mining | <input type="checkbox"/> Water |
| <input type="checkbox"/> Cosmetics | <input type="checkbox"/> Nuclear | <input type="checkbox"/> Zoology |
| <input type="checkbox"/> Electronics | <input type="checkbox"/> Paper/Packaging | <input type="checkbox"/> Other (Specify): _____ |
| <input type="checkbox"/> Food | <input type="checkbox"/> Petrochemical | _____ |



ALL SCIENTIFIC EQUIPMENT COMES WITH A TWO
YEAR WARRANTY ON COMPONENTS AND
DEFECTIVE WORKMANSHIP - Ts & Cs APPLY.

LIMITED WARRANTY

The manufacturer guarantees that this unit is free from defect in materials and workmanship when it leaves the factory and undertakes to replace or repair the unit if it proves defective in normal use or during servicing for a period of 1(one) year from the date of original installation and is for the benefit of the original purchaser only. The liability under this warranty is limited to repairing the defective unit or any part of the unit provided it is sent carriage paid to an authorized dealer. All other Warranties ,expressed or implied , statutory or otherwise, including without limitations any implied Warranty of Merchantability or fitness for purpose are excluded .The Seller shall in no event be liable for direct,indirect or consequential damages in connection with the products.

This unit is at all times to be used according to the instruction manual and for its normal purpose.

This Warranty is not effective if damage occurs because of accident, carelessness,improper installation,lack of proper set-up,supervision when required or if the equipment is installed or operated in any manner contrary to the installation and operating instructions. In these cases,repairs will be made at a reasonable cost. Work performed by unauthorized personnel or unauthorized service agencies voids this Warranty.

COOLING BATH



INSTALLATION OPERATION AND CARE OF COOLING BATHS MODEL: 170/175

UNPACKING

Unpack the product and check for any damage incurred during transit. This should be reported to the responsible carrier, railway or postal authority, and a request for a damage report should be made.



THESE INSTRUCTIONS MUST BE FOLLOWED FOR US TO GUARANTEE OUR FULL SUPPORT OF YOUR CLAIM FOR PROTECTING AGAINST LOSS FROM CONCEALED DAMAGE. THE FORM FOR FILING SUCH A CLAIM WILL BE PROVIDED BY THE CARRIER.

PRODUCT DESCRIPTION

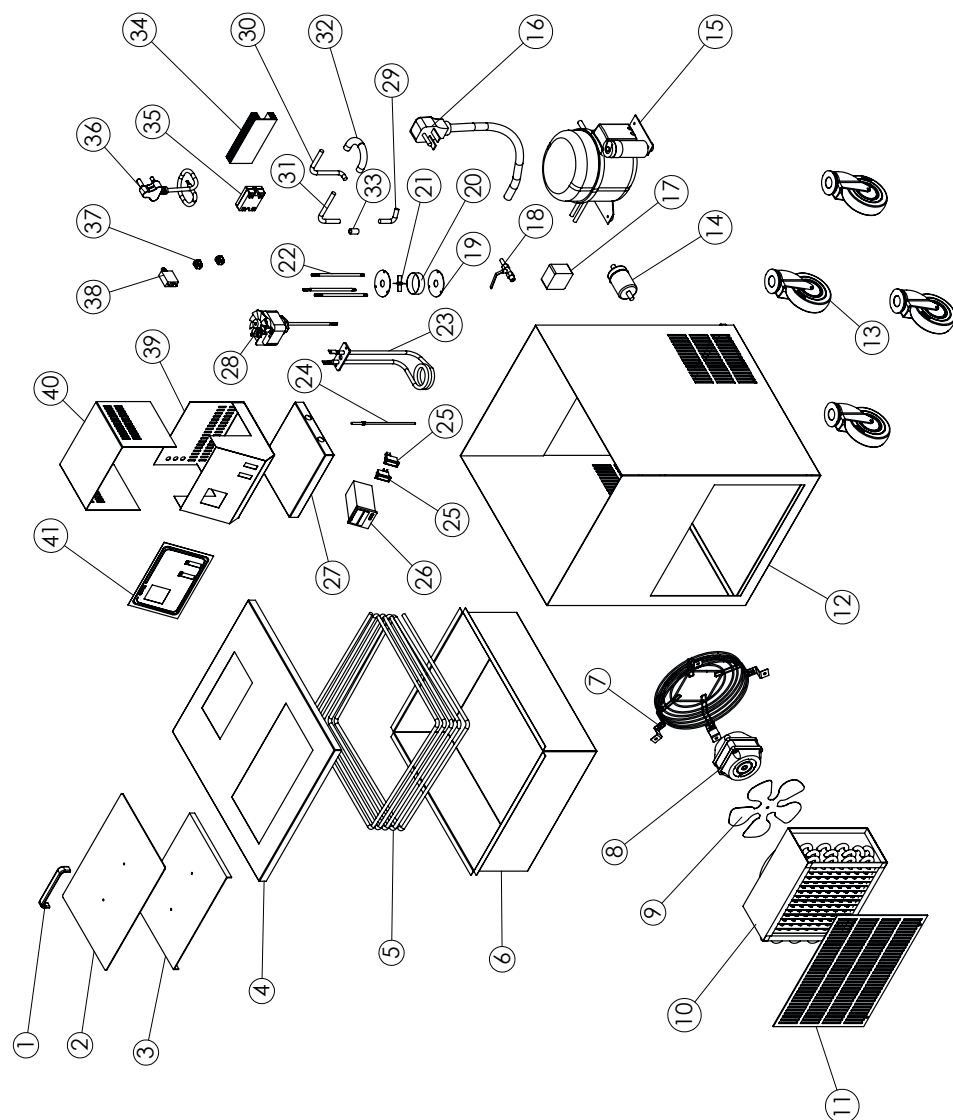
The cooling bath incorporates a circulator and a cooling unit, which have been designed for heating and cooling of liquids in the bath tank. The unit has an external pump feature.

Besides the cooling aggregate, the main functional elements are the heater, circulation pump and control electronics. An electronic proportional temperature control (PID characteristic) adapts the heat supplied to the thermal requirements of the bath to enable the tank medium to be pumped in a closed circuit to other apparatus for heating or cooling purposes.

MODEL: COOLING CIRCULATING BATH MODEL CODE : 175 R00

Part No.	Description
1	HANDLE
2	LID COVER
3	LID COVER STIFFENER
4	BASE TOP COVER
5	COOLING COIL
6	BASE
7	MOTOR GRID
8	FAN MOTOR
9	IMPELLER
10	CONDENSER
11	FRONT COVER
12	OUTER ENCLOSURE
13	CASTORS
14	DRYER
15	COMPRESSOR
16	POWER CORD PLUG
17	SOCKET
18	VALVE
19	PUMP HOUSING COVER
20	PUMP HOUSING BODY
21	IMPELLER
22	PUMP HOUSING STUDS
23	ELEMENT 1200W 230V
24	PT 100 TEMPERATURE PROBE
25	ILLUMINATED ROCKER SWITCH
26	TEMPERATURE CONTROLLER
27	BASE PANEL
28	CIRCULATING MOTOR ASSEMBLY
29	EXTERNAL PUMP CONNECTION PART A
30	EXTERNAL PUMP CONNECTION PART C
31	EXTERNAL PUMP CONNECTION PART B
32	EXTERNAL PUMP BRIDGE PART A
33	EXTERNAL PUMP BRIDGE PART B
34	HEAT SINK
35	SOLID STATE RELAY 25AMP
36	POWER CORD
37	CABLE GLAND
38	INLINE RESETABLE FUSE
39	CHASSIS
40	COVER PLATE
41	FACIA

EXPLODED DIAGRAM COOLING BATH MODEL: 175



GENERAL INSTALLATION AND OPERATION INFORMATION

1. Position the unit on a stable bench.
2. Ensure that there is at least 20 cm of open space at the rear side and front venting grids.
3. Do not set up the unit in the immediate vicinity of a heat source and do not expose to direct sunlight.
4. Before operating the unit after transport or re-positioning wait about one hour after setting it up. This will prevent damage to the compressor.

MODEL 170 -175 LOW TEMPERATURE CIRCULATING BATH

Bath Liquids	Temp. Range	Tubing
Deionized water	5 °C to 90 °C	Viton tubing
Mixture water/glycol	-20 °C to 50 °C	Viton tubing

Recommended bath liquids and tubing

Filling and Draining

1. Take care that no liquid enters the interior of the circulator when filling. Recommended maximum filling level: 25mm below the tank rim.
2. To drain turn off the circulator and cooling machine, Open the ball valve at the rear of unit and drain into a suitable receptacle.

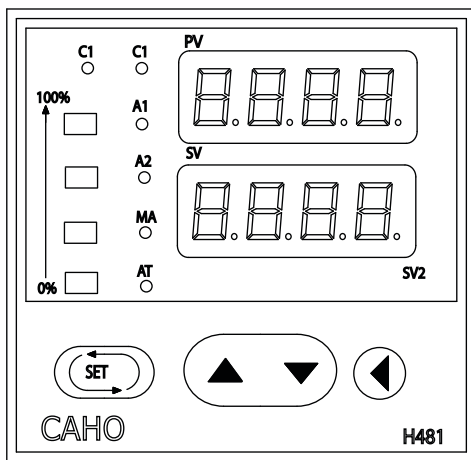
Temperature application to external systems

1. The circulator is used for temperature applications to external, closed systems (temperature loop) with simultaneous internal bath temperature application.
2. Slide the tubing onto the pump connectors located on the side of the circulator head for feed and return.
3. It is recommended to use tubing insulation and to securely fasten the tubing to prevent slipping.

NOTE: The cooling unit will run continuously. The temperature control is activated by the circulator.

OPERATING INSTRUCTIONS OF ELECTRONIC TEMPERATURE CONTROLLER

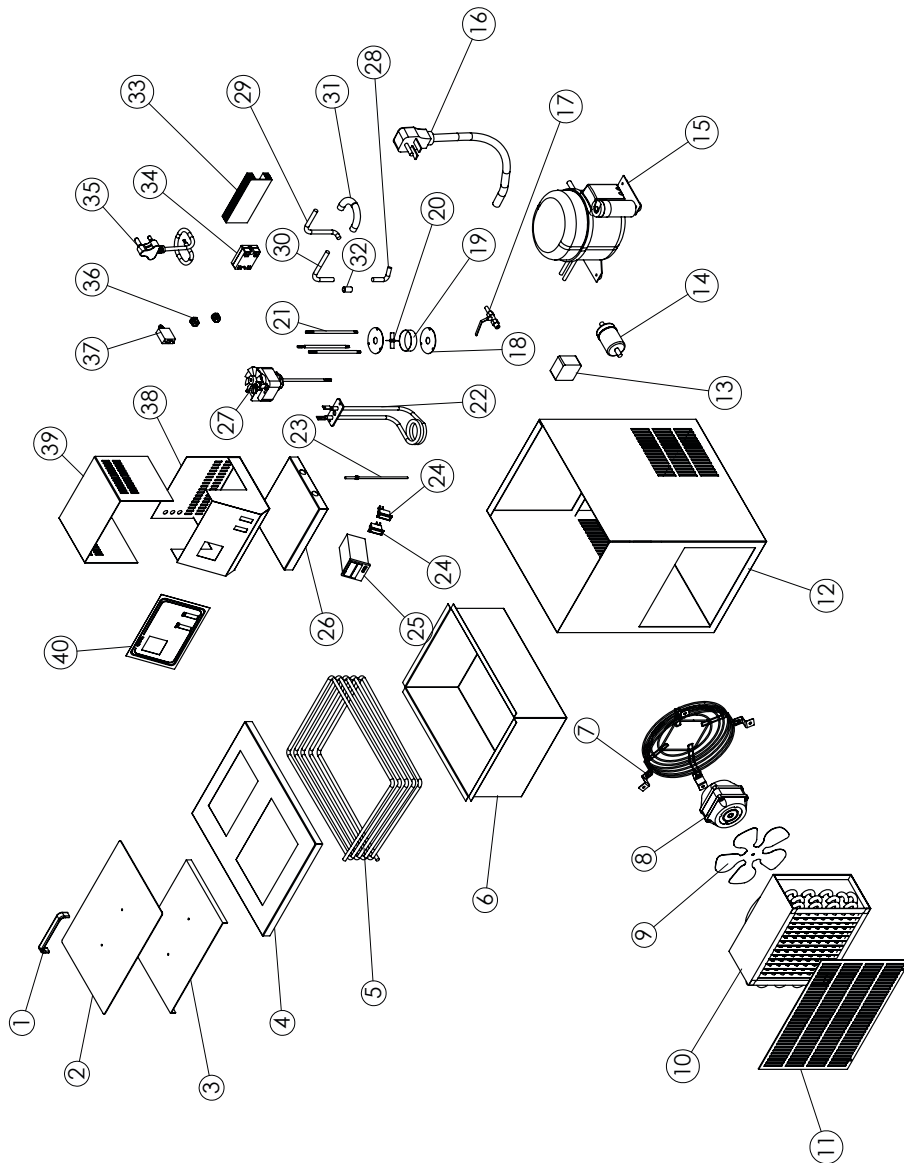
1. The temperature controller has four buttons on the front face. These are used to set the required temperature, initiate Auto-Tuning, and enter any adjustments to the program.
2. To set the required temperature, ensure that the unit is connected and switched "ON" in the appropriate manner.
3. The top display (red) shows the actual temperature (PV) in the unit, the bottom display (green) is the setting temperature (SV) and must be adjusted to the required temperature. To adjust the setting, press the button that points to the left. This action will start one of the digits in the lower display flashing. By touching this button again, the flashing will move to the left. Once the flashing red display is on the number that needs to change, use the UP/DOWN buttons to attain the required settings.
4. By moving the flashing digit left or right the desired temperature required can be set. Once the correct temperature has been entered, press SET to enter the setting.



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Part No.	Description
1	HANDLE
2	LID COVER
3	LID COVER STIFFENER
4	BASE TOP COVER
5	COOLING COIL
6	INNER TANK
7	MOTOR GRID
8	FAN MOTOR
9	IMPELLER
10	CONDENSOR
11	FRONT COVER
12	OUTER ENCLOSURE
13	SOCKET
14	DRYER
15	COMPRESSOR
16	POWER CORD PLUG
17	VALVE
18	PUMP HOUSING COVER
19	PUMP HOUSING BODY
20	IMPELLER
21	PUMP HOUSING STUDS
22	ELEMENT 1200W 230V
23	PT 100 TEMPERATURE PROBE
24	ILUMINATED ROCKER SWITCH
25	TEMPERATURE CONTROLLER
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**EXPLODED DIAGRAM
COOLING BATH
MODEL: 170**



WARNING

Burn Hazard.

Do not touch hot, liquid or heating surfaces while equipment is heating or operating

Hot surfaces and liquid can burn skin. Allow the hot surfaces to cool before handling

CLEANING

BEFORE CLEANING THE UNIT, DISCONNECT THE POWER PLUG FROM THE MAINS SOCKET!

- Clean the unit using a damp cloth with soapy water.
- Do not submerge in water or subject the unit to water spray.
- The circulator is designed for continuous operation. Periodic maintenance is not required.
- The tank should only be filled with recommended liquids. To prevent contamination it is necessary to change liquid periodically.
- To maintain the full cooling performance, occasionally clean the condenser by removing the front panel via the two screws and clean the ribbed condenser with a vacuum cleaner.



CLEAN THE STAINLESS STEEL PARTS WITH WATER AND SOAP. AVOID THE USE OF DETERGENTS CONTAINING ABRASIVE SUBSTANCES. ALWAYS RINSE WELL AND DRY CAREFULLY AFTER CLEANING. DO NOT USE PRODUCTS CONTAINING AGGRESSIVE CHEMICALS, ACIDS OR PRODUCTS WITH CHLORINE TO CLEAN THE STAINLESS STEEL EVEN IF DILUTED



WARNING

Electric Shock Hazard.

Keep water and other liquids from entering the inside of the equipment. Liquid inside the equipment could cause an electrical shock.

Do not spray water or cleaning products. Liquid could contact the electrical components and cause a short circuit or an electrical shock. Do not use equipment if power cord is damaged or has been modified.

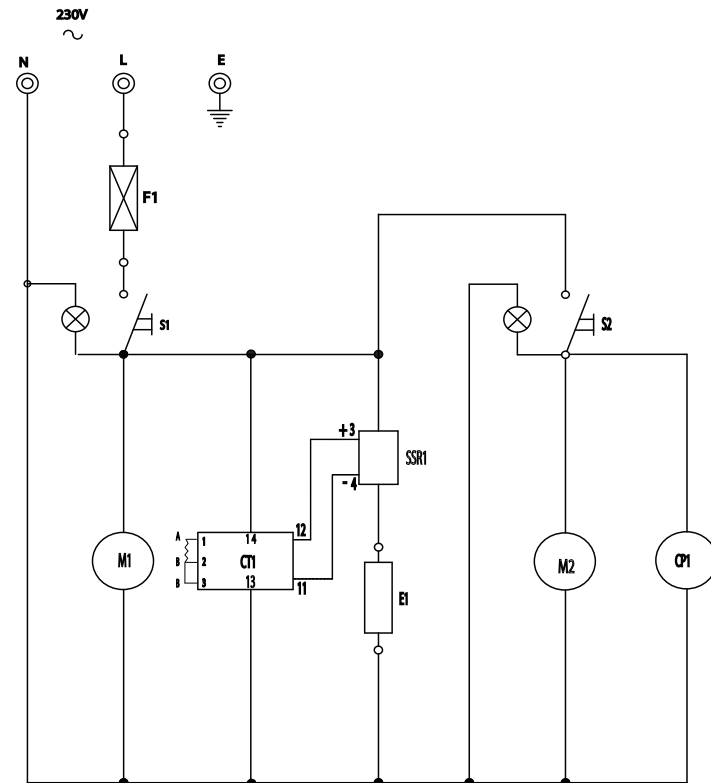
SAFETY

READ ALL INSTRUCTIONS BEFORE USE. FAILURE TO FOLLOW THESE PRECAUTIONS COULD RESULT IN INJURY TO YOURSELF AND OTHERS

1. Use the cooling bath on an individual 15A mains outlet only. **DO NOT OVERLOAD THE CIRCUIT.**
2. Ensure that the equipment and the power supply cord does not come into contact with hot surfaces.
3. This unit is only to be used by properly trained laboratory staff.
4. If the supply cord is damaged, it must be replaced with a new cord assembly available from the suppliers agent.
5. Use only earthed outlets matching the serial plate voltage.
6. Have equipment installed by a qualified personnel in accordance with local codes and ordinances.
7. Use equipment in a flat level position.
8. Do not operate if equipment has been damaged or is malfunctioning in any way.
9. These units are designed to run only on alternating current (A.C.) **DO NOT CONNECT TO DIRECT CURRENT (D.C)**

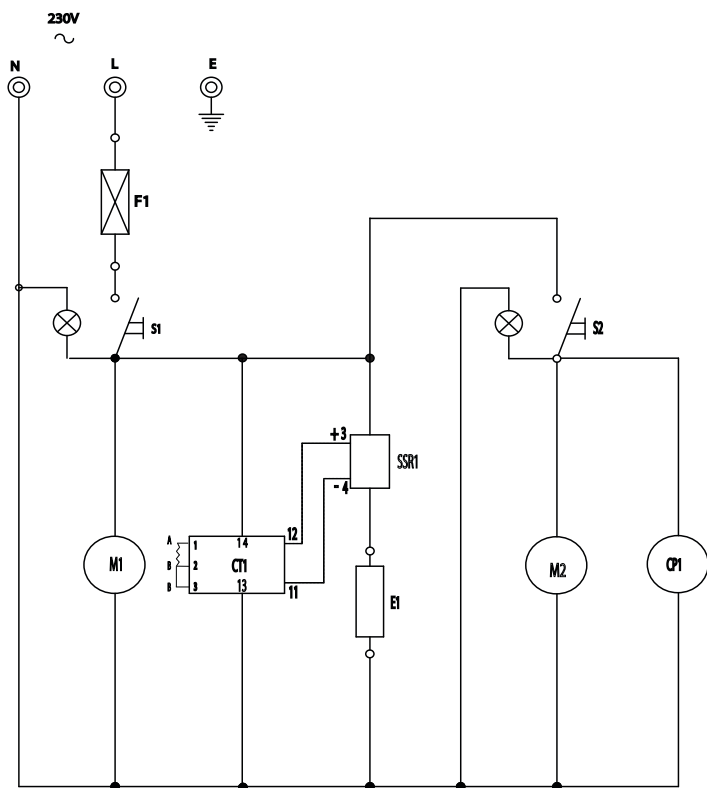
WIRING DIAGRAM MODEL: COOLING BATH MODEL CODE: 175

LEGEND	DESCRIPTION	PART NUMBER
F1	INLINE FUSE	1-RF-261
S1	MAINS SWITCH	1-17TAF
M1	PUMP MOTOR	1-RF261
CT1	CONTROLLER	1-TCD-103
SSR1	SOLID STATE RELAY	1-SSR-40A
E1	ELEMENT 1500W/230V	1-1500W-175
S2	COOLING MAIN SWITCH	1-17TAF
M2	FAN MOTOR	1-CF-170
CP1	COMPRESSOR	1-COMP-175



WIRING DIAGRAM
MODEL: COOLING BATH
MODEL CODE: 170

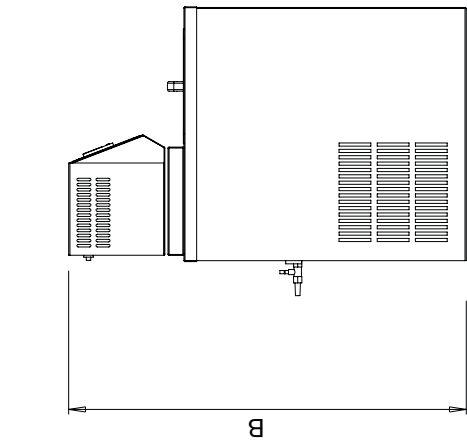
LEGEND	DESCRIPTION	PART NUMBER
F1	INLINE FUSE	1-RF-261
S1	MAINS SWITCH	1-17TAF
M1	PUMP MOTOR	1-RF261
CT1	CONTROLLER	1-TCD-103
SSR1	SOLID STATE RELAY	1-SSR-40A
E1	ELEMENT 1000W/230V	1-1000W-170
S2	COOLING MAIN SWITCH	1-17TAF
M2	FAN MOTOR	1-CF-170
CP1	COMPRESSOR	1-COMP-170



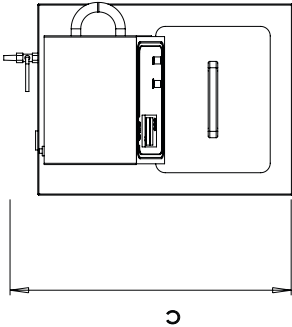
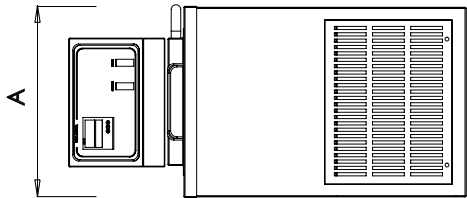
SAFETY RECOMMENDATIONS

1. Exercise CAUTION when emptying hot bath liquids.
2. Store and dispose of the used bath liquid according to the laws for environmental protection.
3. Some parts of the bath cover and the pump connection may become extremely warm or cold during continuous operation. Exercise particular caution when touching these parts.
4. Never operate the unit without sufficient fluid in the bath.
5. Employ suitable connecting tubing. Make sure that the tubes are securely attached. Avoid sharp bends in the tubing. Regularly check the tubing for material defects. Insulate the tube to prevent excess condensation
6. When you have finished the application, it is recommended to keep on circulating the liquid in the bath or system for some time. Simultaneously set the working temperature to +20 C to allow the temperature in the system to decrease slowly. In this way fractional over-heating of the bath liquid is prevented.

**POSITIONING DIAGRAM
COLLING BATH
MODEL: 170/175**



MODEL	A	B	C
170	300	640	400
175	420	780	480



ELECTRICAL CONNECTION INFORMATION

MODEL	DESCRIPTION	VOLTS (V/Hz)	POWER (WATTS)	CAPACITY Lt	OPENING SIZE (mm)
170	LOW TEMPERATURE CIRCULATING BATH	230/50	1000	10	150 x 200
175	LOW TEMPERATURE CIRCULATING BATH	230/50	1500	20	180 x 250



THE CONTROL COMPARTMENT OF THIS UNIT CONTAINS DANGEROUS VOLTAGES. MAINTENANCE AND SERVICING REQUIRING THE REMOVAL OF ANY PANELS OR COVERS SHOULD BE DONE BY QUALIFIED SERVICE PERSONNEL ONLY.



IT IS ESSENTIAL TO MAKE SURE THAT THE INCOMING VOLTAGE IS THE SAME AS THE RATED VOLTAGE OF THE OF THE UNIT AS FOUND ON THE SERIAL PLATE. THE SERIAL PLATE IS LOCATED AT THE REAR OF THE UNIT ADJACENT TO THE INCOMING CABLE ENTRY.