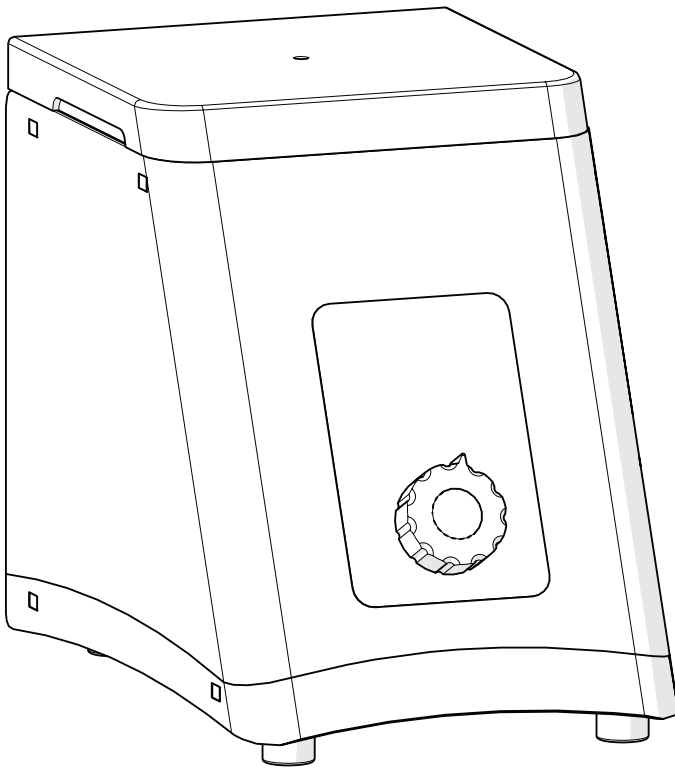


Biotage[®] Lysera Cryo

Cooling Unit User Manual



Data herein has been verified and validated. It is believed adequate for the intended use of the instrument. If the instrument or procedures are used for purposes over and above the capabilities specified herein, confirmation of the validity and suitability should be obtained; otherwise Biotage does not guarantee results and assumes no obligation or liability. This publication is not a license to operate under, or a recommendation to infringe upon, any process patents.

This product is warranted to be free from defects in material and workmanship for a period of TWO YEARS from the date of delivery. Biotage will repair or replace and return free of charge any part which is returned to its factory within said period, transportation prepaid by user, and which is found upon inspection to have been defective in materials or workmanship. This warranty does not include normal wear from use; it does not apply to any instrument or parts which have been altered by anyone other than an employee of Biotage nor to any instrument which has been damaged through accident, negligence, failure to follow operating instructions, the use of electric currents or circuits other than those specified on the plate affixed to the instrument, misuse, or abuse. Biotage reserves the right to change, alter, modify, or improve any of its instruments without any obligation whatever to make corresponding changes to any instrument previously sold or shipped.

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This product has been engineered for safety; however, basic safety precautions and common sense must always be demonstrated when using any electrical product.

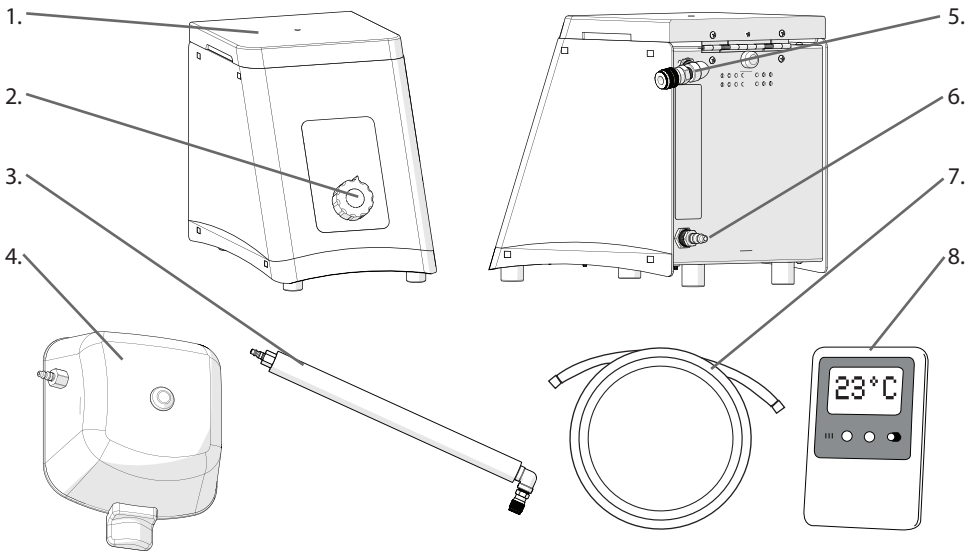
- DO NOT attempt to modify any part of this product.
- DO NOT allow the machine to be submerged in any liquid.
- DO NOT use in any setting other than an indoor laboratory.
- DO NOT plug power cord into an incorrect outlet or subject it to an incorrect voltage.
- Use this product only for its intended purpose.
- DO NOT use attachments not recommended by the manufacturer.
- DO NOT operate the product if it is damaged in any way.
- Keep this product away from heated surfaces.
- DO NOT modify the plug or cord that is provided. If the plug will not fit the outlet, have the proper outlet installed by a qualified electrician.
- DO NOT operate the product with the safety ground disconnected.

WARNING: Reduce the risk of unintentional starting; make sure the speed switch is in the OFF position before plugging in the motor.

WARNING: Damaged or worn power cords should be repaired or replaced immediately by a qualified electrician.

WARNING: Improper connection of the equipment can result in a risk of electric shock.

Overview



- 1. Lid
- 2. Airflow Control Knob
- 3. Insulated Cryo Hose
- 4. Biotage® Lysera Cryo Lid

- 5. Cold Air Outflow
- 6. Compressed Air Input
- 7. Compressed Air Hose
- 8. External Thermometer

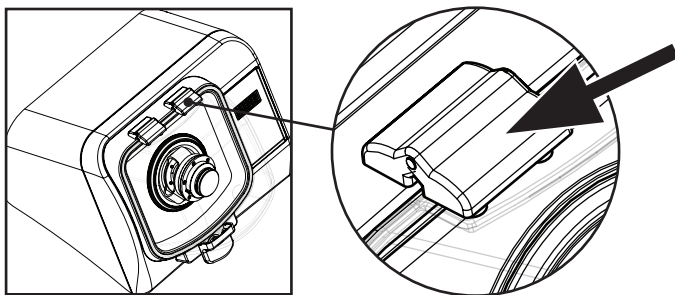
The Lysera Cryo Cooling Unit consists of the following:

Description	Quantity
Biotage® Lysera Cryo Cooling Unit	1
Insulated Cryo Hose	1
Biotage® Lysera Cryo Lid	1
External Thermometer	1
Compressed Air Hose	1
Tool Kit	1
User Manual	1

Installation

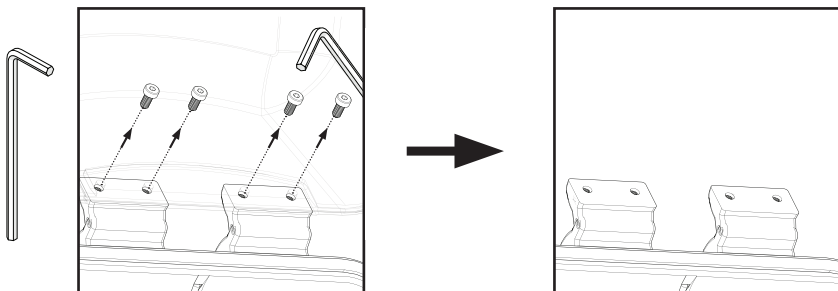
Removing the Biotage® Lysera Lid

1.



Locate Lid Hinges.

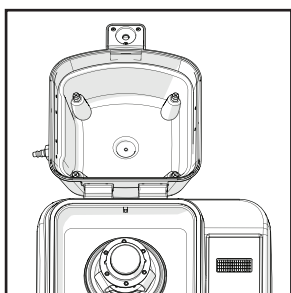
2.



Lift Lid and remove 4 screws using the provided Allen Key.
Remove Lid

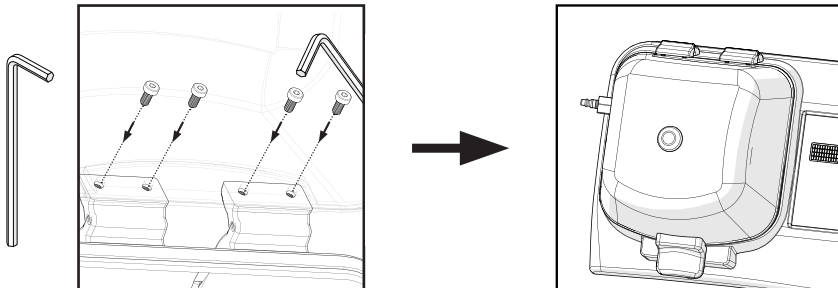
Replace with Biotage® Lysera Cryo Lid (Black)

3.



Align black Cryo lid onto the Lysera.

4.

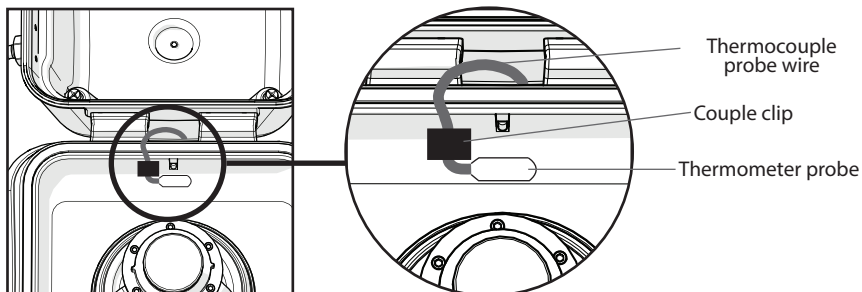


Replace the four screws and tighten using the provided Allen Key.

Installation

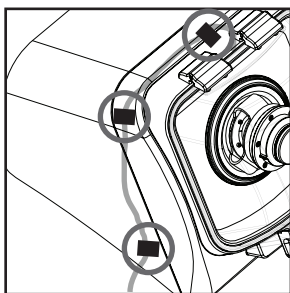
Install the External Thermometer

1.



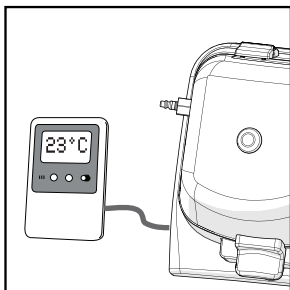
Position the Thermocouple Probe under the Biotage® Lysera lid as shown, using the Couple Clip to secure the thermocouple probe wire under the Lysera lid.

2.



Place remaining Couple Clips as shown. Guide the thermocouple probe wire through the clips.

3.



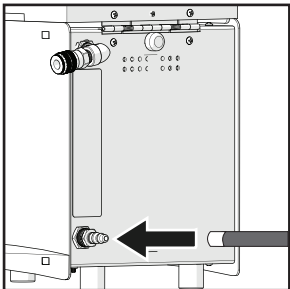
Plug the thermocouple probe wire into the External Thermometer.

NOTE: The Digital Thermometer has been preset to Celsius with alarms to be triggered if temperatures reach below -10°C or over 70°C.

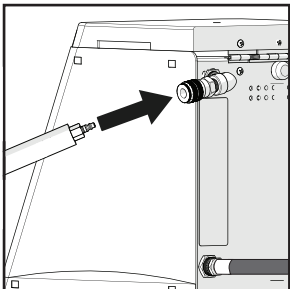
Installation

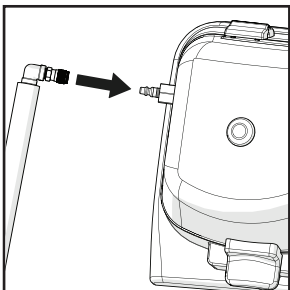
Install Intake and Output Hoses

NOTE: Compressed ISO8573 Class 2 or better air is required to use the Cryo unit: Total oil < 0.1 mg/m³, vapor pressure dew point < -50°C.

1.  Connect the hose from air supply to the rear of the Cryo unit.

Note: An optional hose with a “quick connect” coupling has been included with the Cryo. An additional fitting may be required to connect the hose to the air supply.

2.  Connect the straight end of the Insulated Cryo Hose to the Cryo Unit.

3.  Connect the 90° elbow end of the Insulated Cryo Hose to the Biotage® Lysera Lid.

Recommended Dry Air Guidelines

- Obtain a high-pressure cylinder of Medical Air. Medical Air is a blend of nitrogen and oxygen that contains virtually no traces of oil or water vapor.

OR

- Between an air compressor and the Cryo Unit inlet, use a refrigerated air dryer or desiccant dryer. These systems are specified in the lowest dew point that can be reached.

- **DO NOT** use inlet pressure below 55 PSI or above 120 PSI.

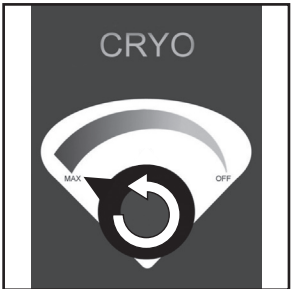
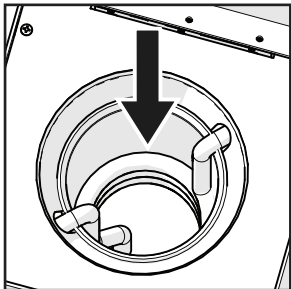
Operation

Liquid Nitrogen Pre - Cooling

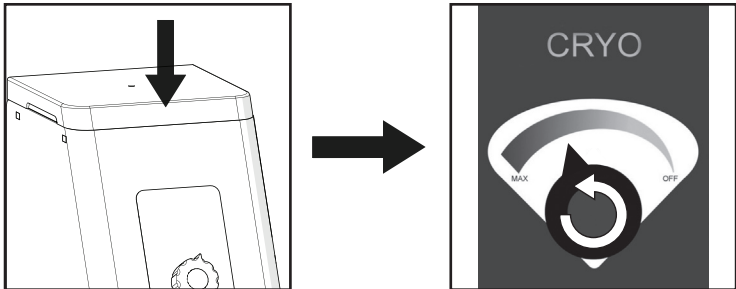
WARNING: Wear eye, face, hand and skin protection when working with liquid nitrogen. Operate in a well ventilated area.

PRE-COOLING - follow pre-cooling procedure before homogenizing samples.

NOTE: Do not load samples into the Biotage® Lysera processing chamber prior to pre-cooling.

- 
 - Purge air lines by running dry air for 30 seconds at the MAX setting.
 - Turn knob to the **Off** position.
- 

Add 0.5 L or 16 oz. of liquid nitrogen to the chamber, fill to 3 inches (7.6 cm) below the top of the chamber.

NOTE: The copper coils in the chamber must be completely covered by liquid nitrogen.
- 

Close the lid of the Cryo unit and turn the air flow control knob counterclockwise to begin the flow of air into the processing chamber.

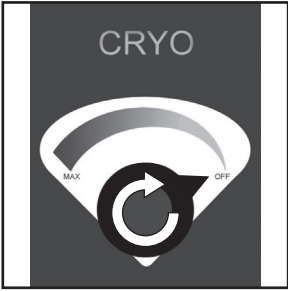
Pre-cool the Biotage® Lysera processing chamber to 0°C.

WARNING: DO NOT pre-cool the processing chamber below 0°C.

Operation

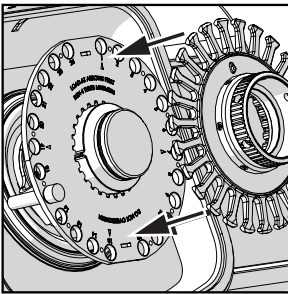
Liquid Nitrogen Homogenizing Samples

1.



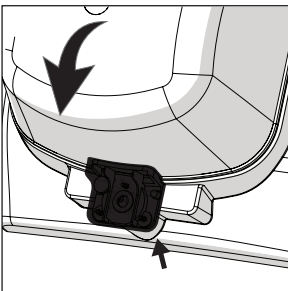
Ensure the knob of the Cryo is in the off position and all hoses are connected correctly.

2.



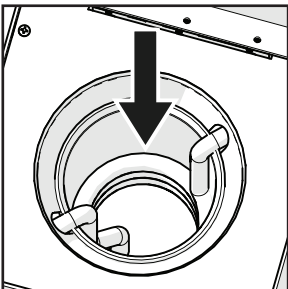
- Load samples into the Biotage® Lysera.
- Install Finger Plate
- Set the desired time, speed dwell and number of cycles on the Lysera.

3.



Close the Biotage® Lysera lid.

4.



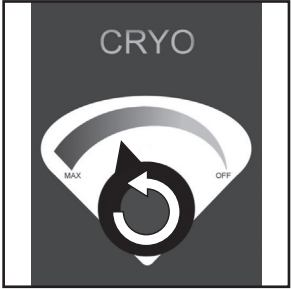
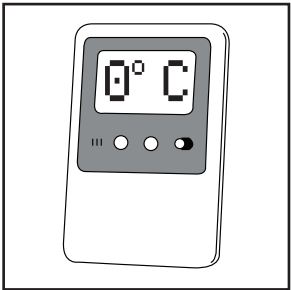
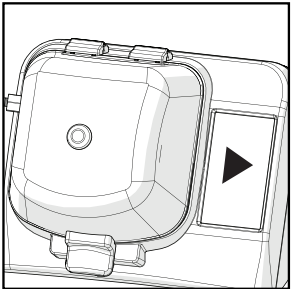
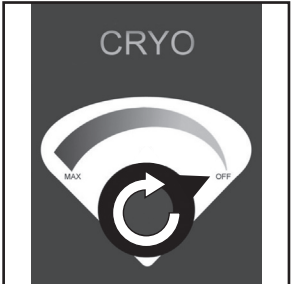
Add 0.5 L or 16 oz. of liquid nitrogen to the chamber of the Cryo unit, fill to 3 inches (7.6 cm) below the top of the chamber.

NOTE: The copper coils in the chamber must be completely covered by liquid nitrogen.

CAUTION: 55-120 PSI is the recommended air pressure for use with the Cryo. Pressure above 120 PSI could damage internal components.

Operation

Liquid Nitrogen Homogenizing Samples

5.  Turn Airflow control knob counter clockwise to begin cooling.
6.  Allow air to flow until the External Thermometer reads 0°C.
7.  Once the temperature has reached 0°C, press RUN on the Biotage® Lysera to begin homogenization.
8. 

When the cycle has ended:

 - Turn off compressed air supply
 - Turn off Cryo
 - Open the lid of the Lysera and remove samples.

CAUTION: Allow liquid nitrogen to evaporate before attempting to move the Cryo unit.

WARNING: Avoid direct skin contact with Cryo and Lysera components after exposure to liquid nitrogen. Always use protective gloves.

Operation

Dry Ice Pre-Cooling

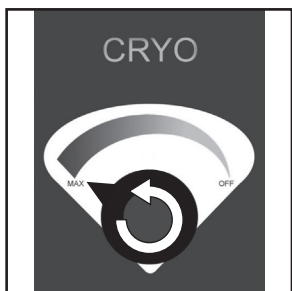
Liquid nitrogen will provide the best results. However, dry ice and alcohol may be used.

WARNING: Wear eye, face, hand and skin protection when working with Dry Ice. Operate in a well ventilated area.

PRE-COOLING - follow pre-cooling procedure before homogenizing samples.

NOTE: Do not load samples into the Biotage® Lysera processing chamber prior to pre-cooling.

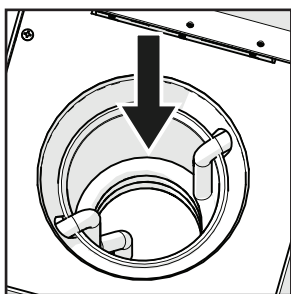
1.



- Purge air lines by running dry air for 30 seconds at the MAX setting.

- Turn knob to the **Off** position.

2.

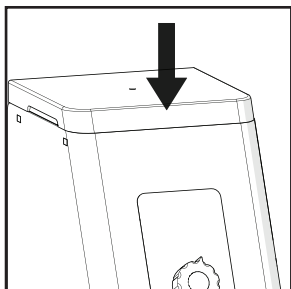


- Add 0.5 L (16 oz.) Of dry ice to the Cryo chamber.

- Add 0.5 L (16 oz.) of ethanol to the Cryo chamber and the mixture sit for five minutes to allow the coil to cool.

NOTE: The copper coils in the chamber must be completely covered by the alcohol and dry ice.

3.



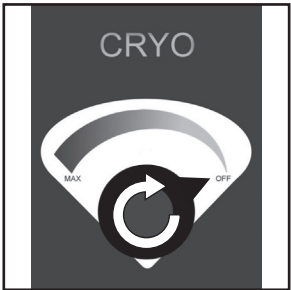
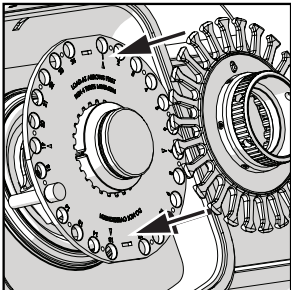
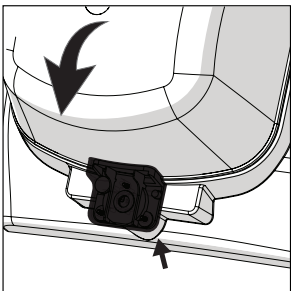
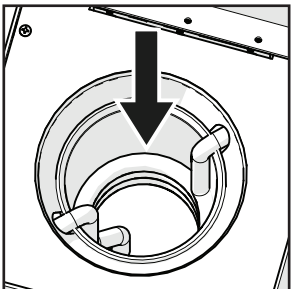
Close the lid of the Cryo unit and turn the air flow control knob counterclockwise to begin the flow of air into the processing chamber.

Pre-cool the Biotage® Lysera processing chamber to -5°C.

WARNING: DO NOT pre-cool the processing chamber below -5°C.

Operation

Dry Ice Homogenizing Samples

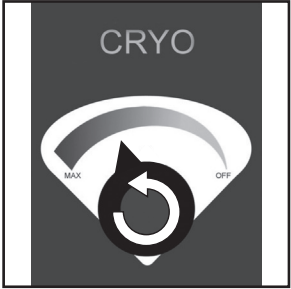
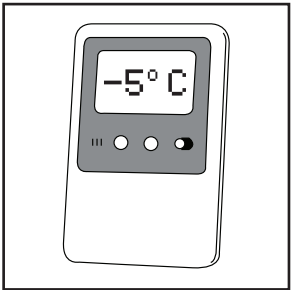
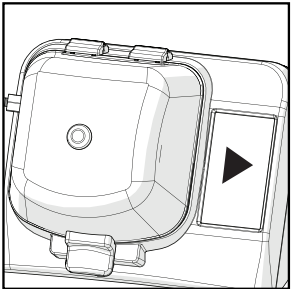
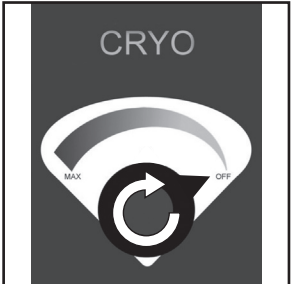
1.  Ensure that the knob of the Cryo is in the off position and all hoses are connected correctly.
2. 
 - Load samples into the Biotage® Lysera.
 - Install Finger Plate
 - Set the desired time, speed dwell and number of cycles on the Lysera.
3.  Close the Biotage® Lysera lid.
4. 
 - Add 0.5 L (16 oz.) Of dry ice to the Cryo chamber.
 - Add 0.5 L (16 oz.) of ethanol to the Cryo chamber and the mixture sit for five minutes to allow the coil to cool.

NOTE: The copper coils in the chamber must be completely covered by the alcohol and dry ice.

CAUTION: 55-120 PSI is the recommended air pressure for use with the Cryo. Pressure above 120 PSI could damage internal components.

Operation

Dry Ice Homogenizing Samples

5.  Turn Airflow control knob counter clockwise to begin cooling.
6.  Allow air to flow until the External Thermometer reads -5°C (23°F)
7.  Once the temperature has reached -5°C, press RUN on the Biotage® Lysera to begin homogenization.
8. 

When the cycle has ended:

 - Turn off compressed air supply
 - Turn off Cryo
 - Open the lid of the Biotage® Lysera and remove samples.

CAUTION: Allow the dry ice to evaporate and dispose of remaining alcohol before attempting to move the Cryo unit.

WARNING: Avoid direct skin contact with Cryo and Lysera components after exposure to dry ice. Always use protective gloves.

Trouble Shooting

Problem	Possible Cause	Action
Cold air is not flowing into the Biotage® Lysera.	The cooling system is not supplied with compressed air.	<ol style="list-style-type: none"> 1. Check that the air source is open. 2. Check that there are no leaks in the hoses.
	<ul style="list-style-type: none"> - The airflow nozzles are obstructed. - The air purity is lower than recommended. 	<ol style="list-style-type: none"> 1. Wait for the units to completely de-frost. 2. Ensure the air purity is 99% and the water content <5ppm.
One or several outflows do not work.	One or more nozzles are defective.	Contact Technical Support
System is not performing optimally	The airflow holes are obstructed.	<ol style="list-style-type: none"> 1. Wait for the units to completely de-frost. 2. If problem persists, contact technical support.
	The outflow control valves or regulator are defective.	Contact technical support.

DO NOT: attempt to service the Cryo Cooling Unit in a manner other than those discussed in this manual. For any issue that is unsuccessfully corrected using this guide, please contact your authorized dealer or call Biotage 1-Point Support Tel: +1 800 446 4752.



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Part Number: UI375

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