Unpacking & Setting Up Your Cryostation

A “How-To” Guide for Installing Your New System

A Word from Our Team

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- Thank you for purchasing a Cryostation from Montana Instruments. We hope this laboratory instrument performs at the high level you expect.
- This manual is intended as your step by step guide as you unpack and setup the Cryostation. Please call if you need any help learning about your new tool.

What You'll Need for Installation

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- 200-240 VAC power outlet for the Compressor.
  - These plug styles should be arranged in advance
- 100-240 VAC power outlet for the Control Unit.
- 100-240 VAC power outlet for the laptop
- Dry Nitrogen to connect to the system
  - (About 15psi is sufficient)
- A small crescent wrench for tightening Helium hoses

Unpacking The System

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Unpack the Compressor

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- Note the condition of the box, shock watch sensors, and tilt watch sensors! Red in these sensors indicates a shipping problem.
- Record any problems and communicate them to the shipper and to us.

Unpack the Compressor

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- Clip the bands

- Lift off the top

Remove from Compressor

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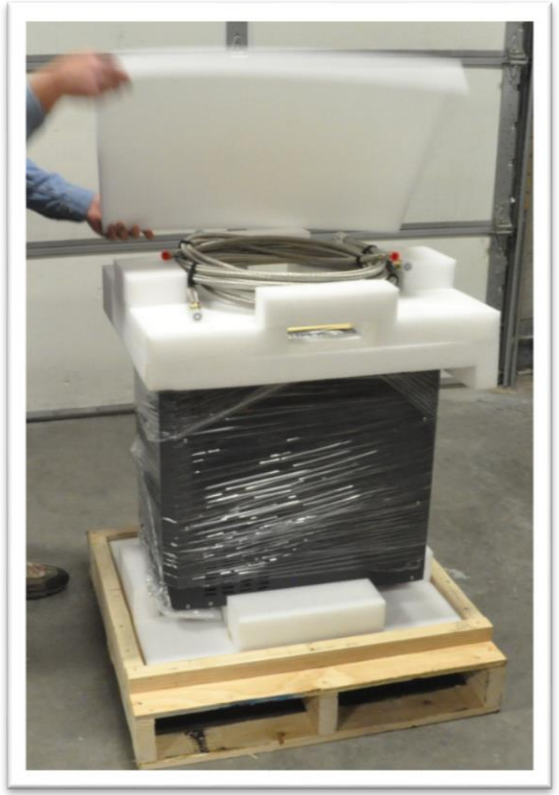
- Remove the hoses
- Find someone to help you lift the Compressor off the pallet.
  - !! Be careful – this is heavy (about 200 pounds or 90 kg)



About the Hoses

- The system comes with two pressurized helium hoses and one vacuum hose.

Helium Hose

Vacuum Hose

Locating the Compressor

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- Unwrap the plastic wrap and roll the unit to the area near the optical table. Place the unit where you can plug the cables and hoses into the back. Make sure the compressor has enough space for airflow to travel, preventing overheating of the unit.
- The Control Unit will typically be located next to the Compressor unless there are long cables. The Control Unit can be below the optics table or on a rack mount above the optics table.

Unpack the Longer Box

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- Start with the longer box. It contains two boxes, one with the cables, computer and accessories, and one with the Control Unit.

Unpack the Control Unit

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- Open the larger box. Slide the Control Unit out.
- Remove the foam and unwrap the clear wrap.
- Move this to the desired location.

Unpack the Cryostat Box

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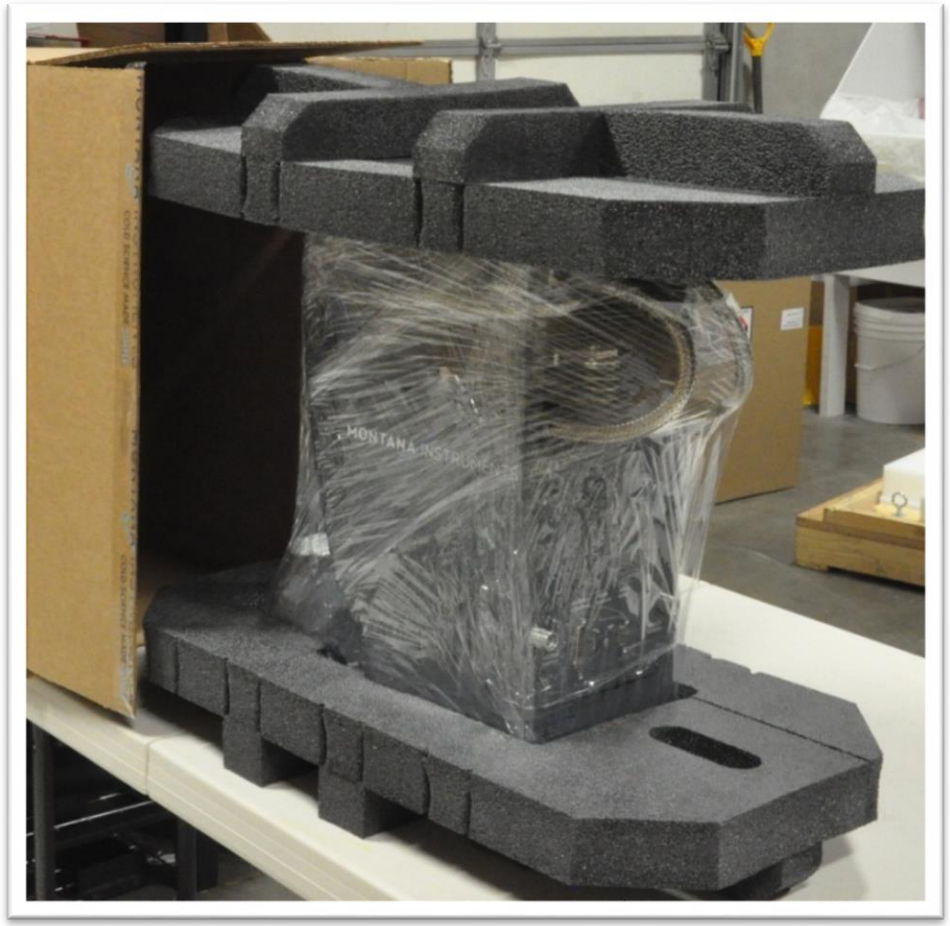
- Similarly unpack the other box on the crate. This contains the Cryostat.
  - !! Be careful not to tilt the unit.
- Remove the foam and clear wrap.



Move the Cryostat to your table

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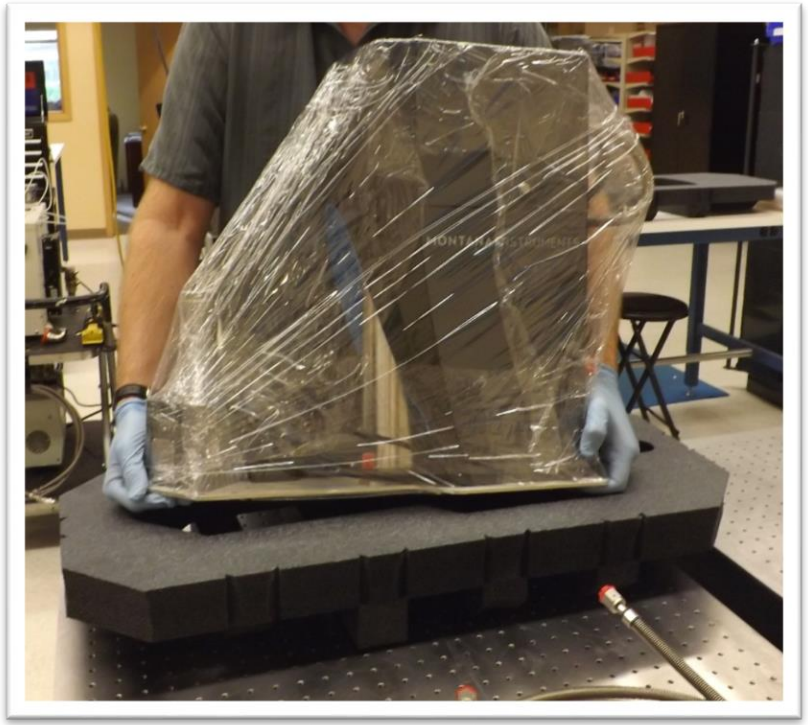
- Place the Cryostat carefully on your optical table.
- Remove the clear wrap around the sample chamber.



Position the Cryostation on the Table

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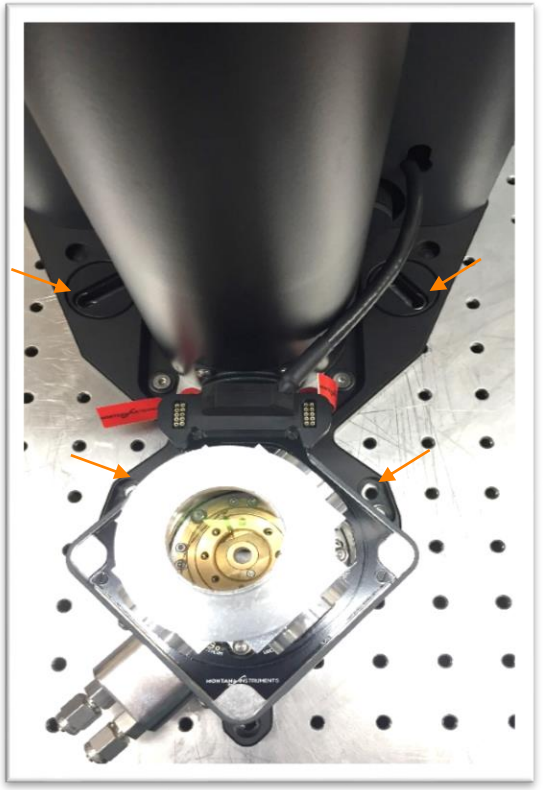
- Align the Cryostat either at 45 degrees or 90 degrees on the optics table. The Cryostation is now both metric and imperial compatible, and the base plate remains in place.
- Put a screw in the front most hole, but just start the screw, do not tighten.

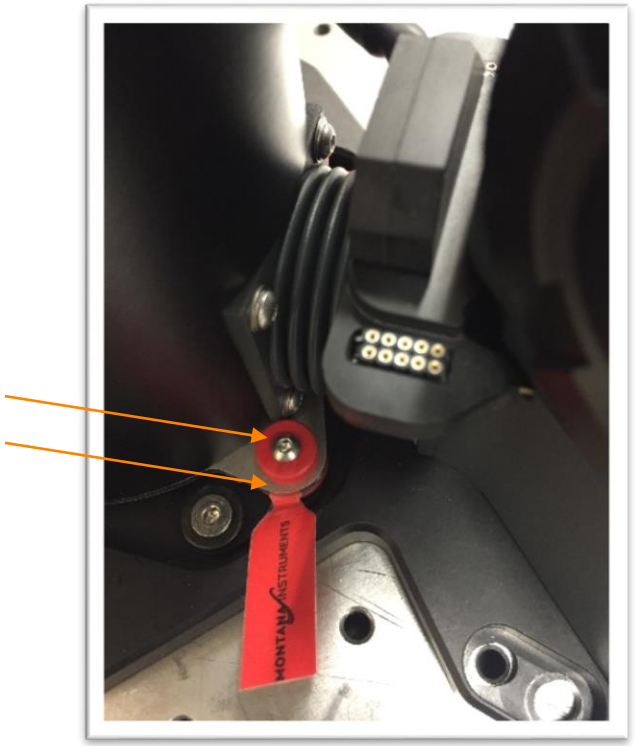
Attach to Optics Table

- Start screws in the rest of the holes, two by the sample chamber, two in the middle and two at the rear of the unit.
- Tighten all screws.



Remove the Shipping Supports

- With the Cryostation attached to the table, remove the shipping supports.
- Start by removing both M3 screws, then the red caps, followed by the c-spacer below. The c-spacer is removed by pulling the tab.



Remove the Rear Shipping Support

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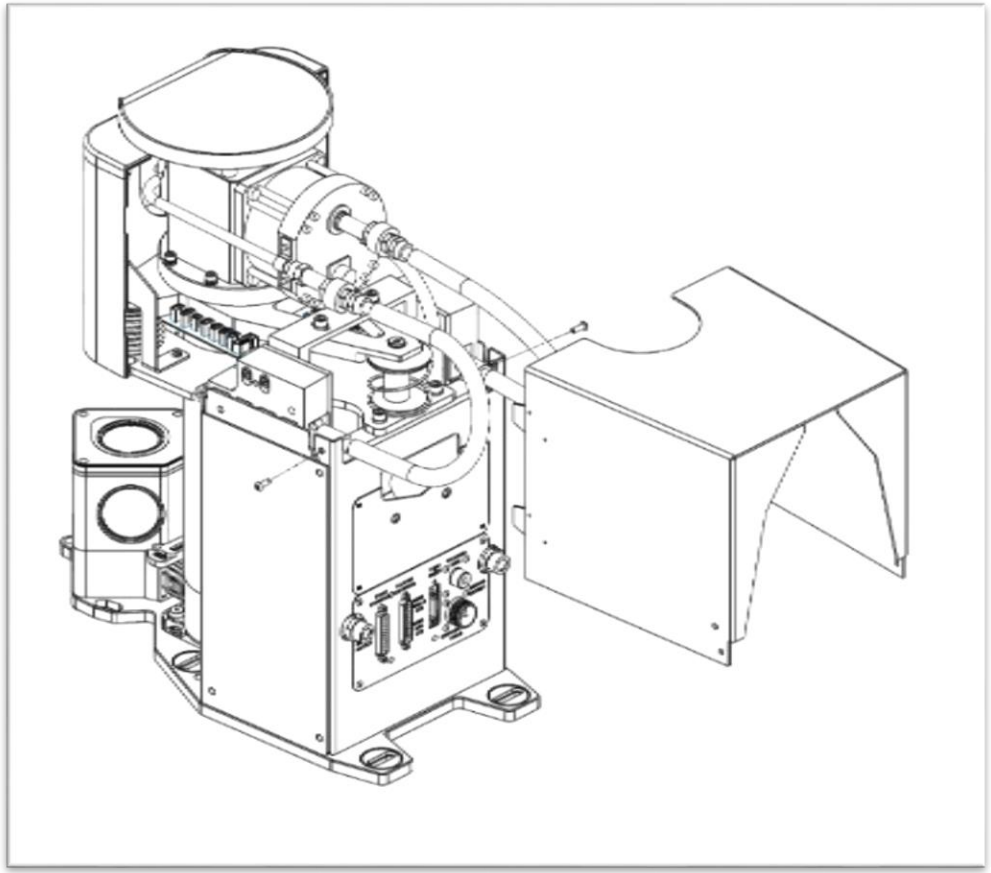
- Remove the top cover first by removing the two M4x8mm button head screws.
- Slide the top cover back and set aside.



Remove the Rear Shipping Support (2)

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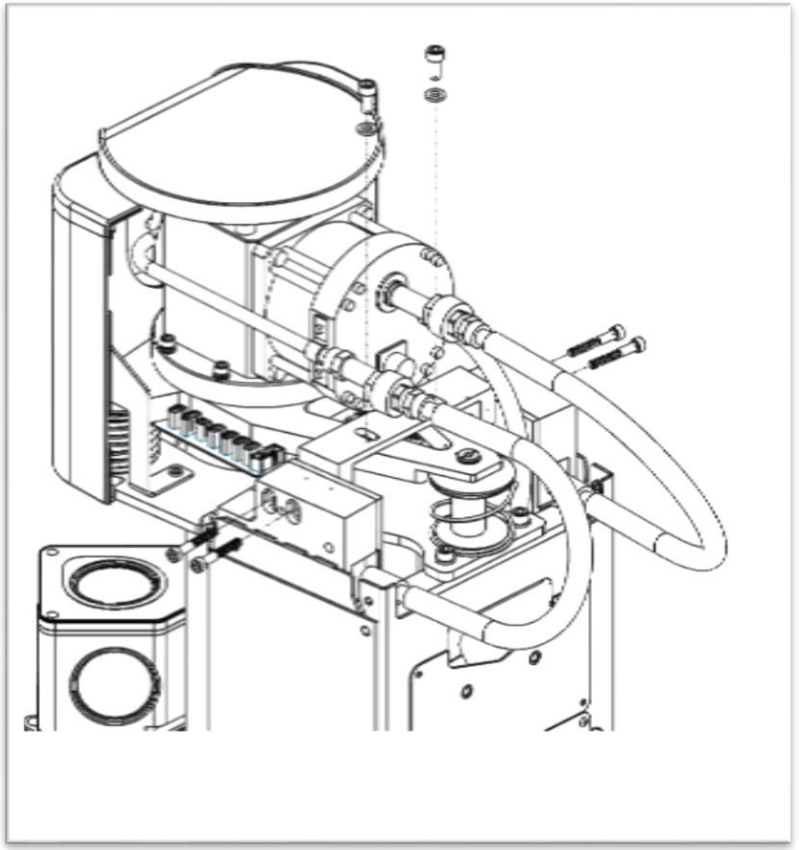
- Remove the four M5 x 35mm screws securing the shipping support with a 4mm allen key and set aside.
- Remove the four M6 x 14mm screws with a 5mm allen key.
- The shipping support should be stored if the system is moved at another time.



About the Cables

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- There are several cables in your system.

Attach the Supply Hose

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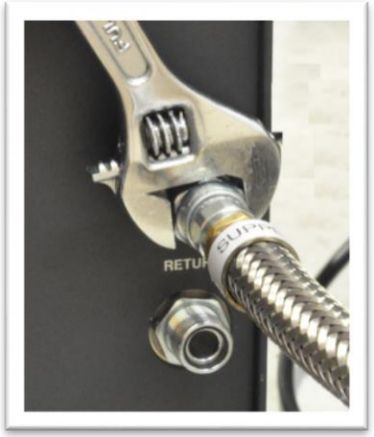
- Unscrew the caps on the back of the Compressor.
- Start with the Supply line. Attach it at the Compressor. Use a small wrench to snug the hose to the case, tighten with wrench only applying the force of your hand, stop when added force is needed. Make sure the fitting goes on straight.
- Then attach the other end at the Cryostat, tightening the same way.



Attach the Return Hose

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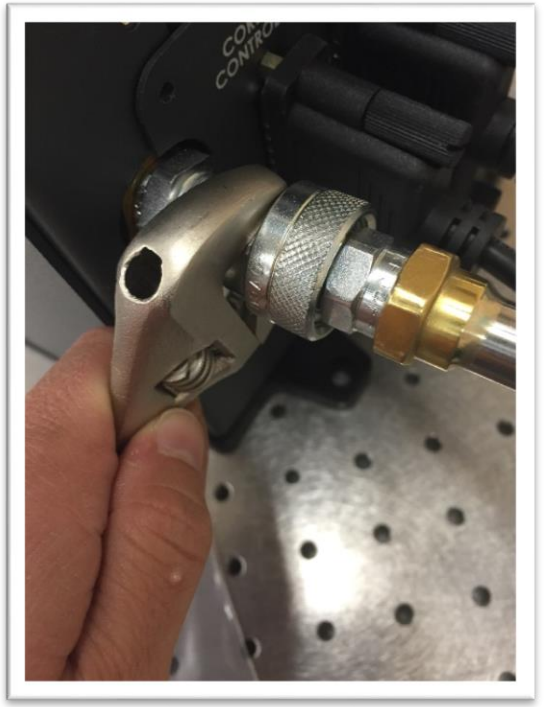
- Similarly attach the Return hose to the Compressor.
- Then similarly attach to the Cryostat.



About Hose Routing

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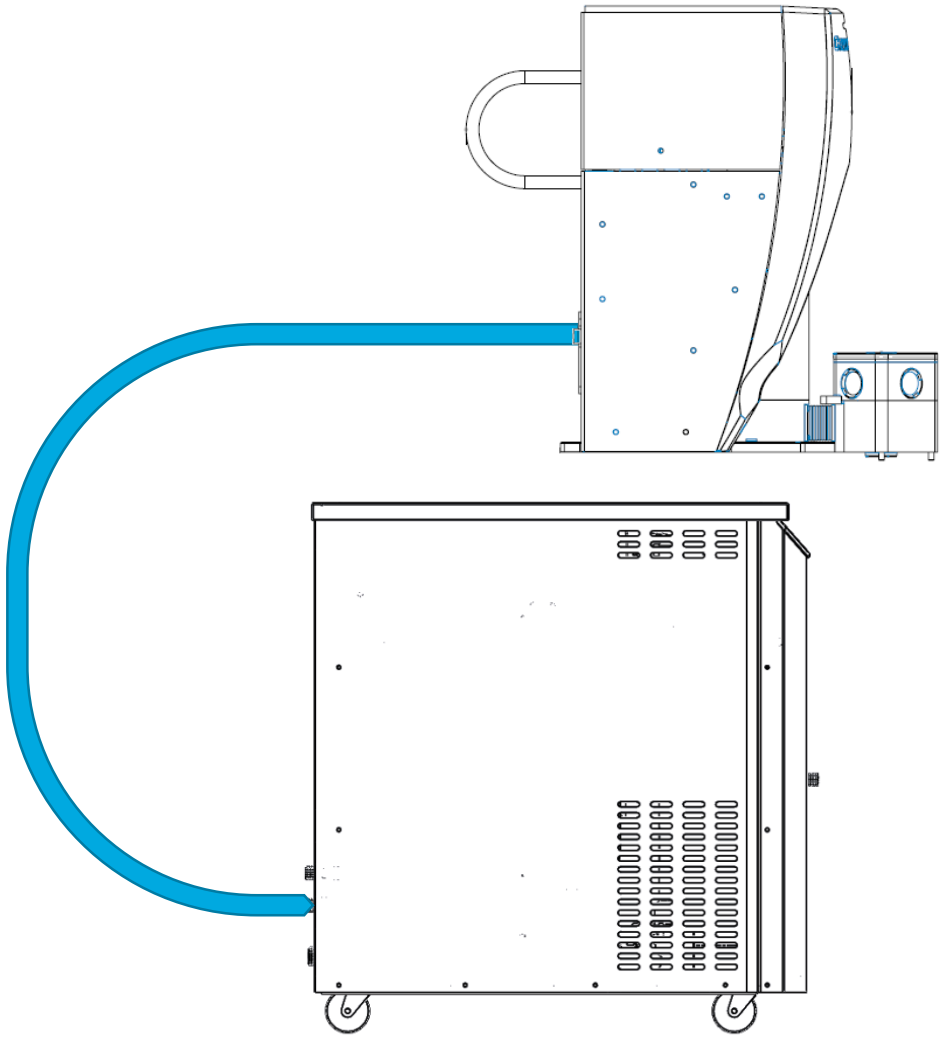
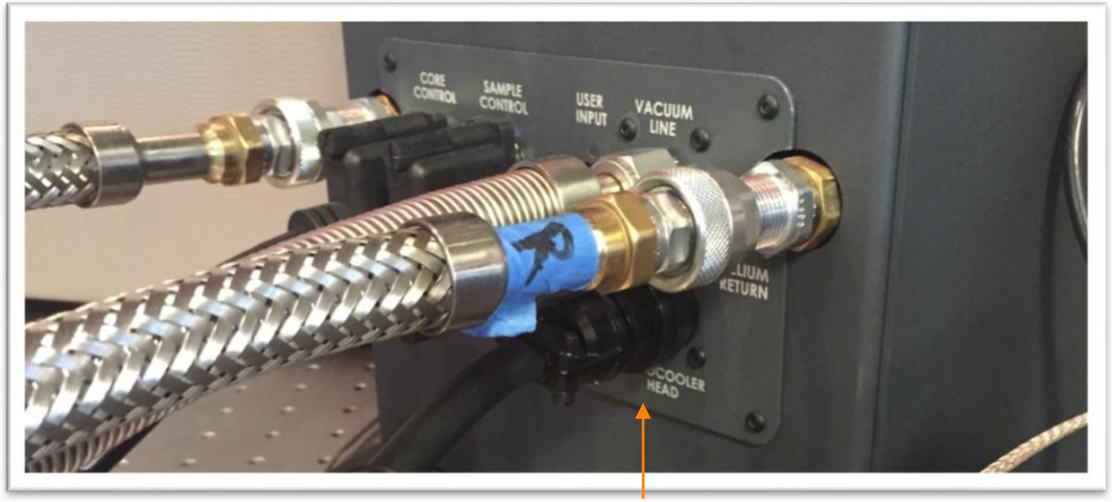
- When you run the helium hoses, try to have a half circle bend somewhere in its path and keep the hose from touching the table. This helps isolate the hose motion from causing vibrations at your table.



Attach the Cooler Drive Line

- Find the M6 to M6 cable in your cable set.
- Attach one end to the back of the Compressor transformer unit. Hand tighten only.
- Attach the other end to the back of the Cold Head



Attach the DB25 Sockets Cable

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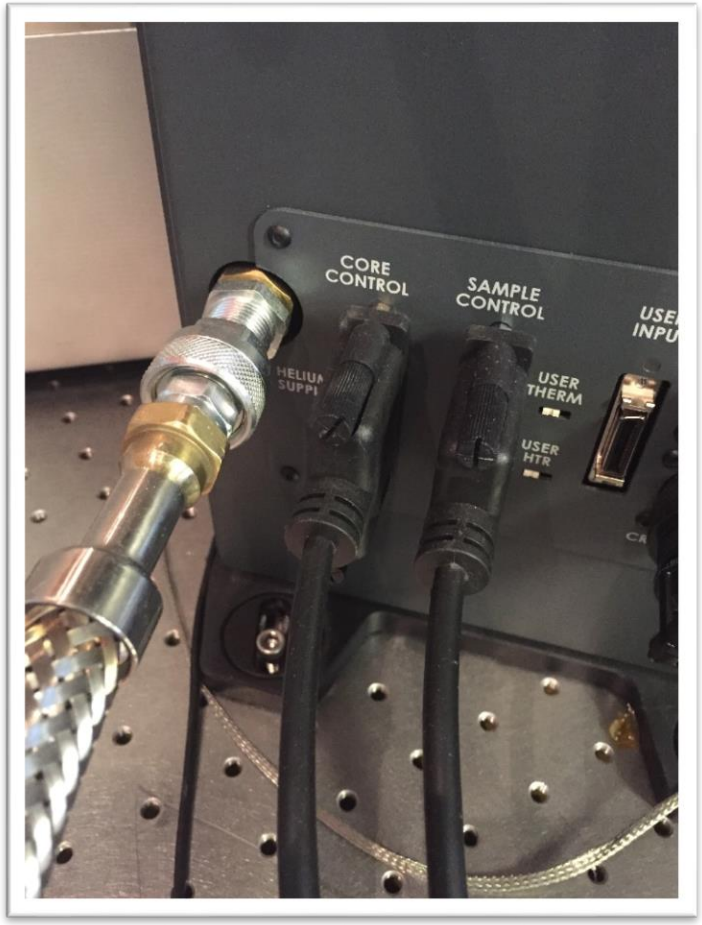
- Find the cable with two DB25 ends with sockets.
- Attach one end to the back of the Control Unit at the Sample Control connector.
- Attach the other end to the back of the Cryostat.
- Use the thumbscrews to retain.



Attaching the DB25 Pins Cable

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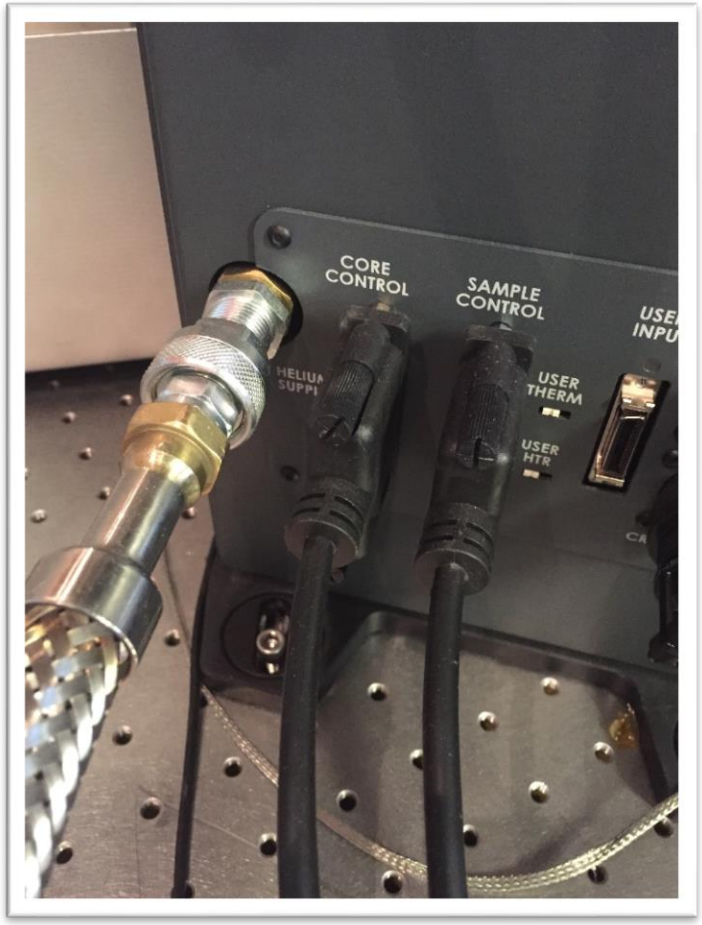
- Find the cable with two DB25 ends with pins.
- Attach one end on the back of the Control Unit at the Core Control connector. Use thumbscrews to retain.
- Attach the other end to the back of the Cryostat.
- Use the thumbscrews to retain.



Attach the DB9 Cable

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- Find the DB9-DB9 cable.
- Attach one end to the back of the Control Unit.
- Attach the other end to the back of the Compressor.
- Use the thumbscrews to retain.

Attach the Vacuum Hose

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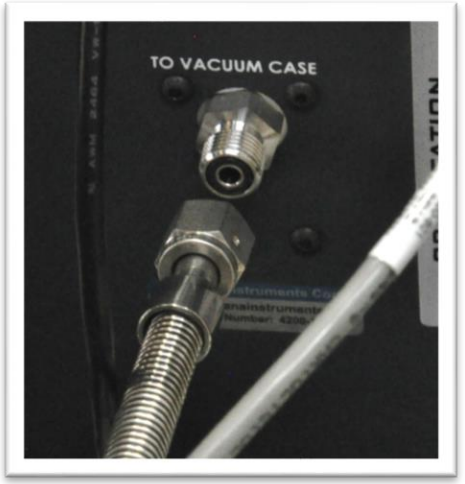
- Find the Vacuum Hose. Make sure there is an o-ring on each fitting.
- Attach one to the back panel of the Cryostat.
- Attach the other end to the Vacuum Case port on the back of the Control Unit.



Connect the Nitrogen

- Connect a 1/4” or 6mm tube from your Nitrogen tank to the press insert fitting on the back of your Control Unit.
- Set the Nitrogen pressure to about 15psi. The system only uses this when warming up to replace the vacuum.

Setup the User Interface

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- Unpack the PC and set it in a convenient place.
- Plug in the power supply to the unit.
- Plug in the USB cable from the PC to the front panel of the Control Unit.

User Interface Laptop Location

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- You can put your User Interface PC on the optical table or nearby where it is convenient.
- If your lab has a network connection, this will be convenient for remotely controlling the system.

Double Check Everything

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- The power cables for the Control Unit and the Compressor left over.
- Double check that all the cables are neatly routed and connected properly.
- Replace the cryostat housing.

Attach the System Power

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Installation Location:	USA and non-EU	CEE Europe (non UK)	UK
Wall outlets required	One NEMA 6-20(R) near Compressor, one NEMA 5 near Control Unit	Two CEE 7/7 with common earth ground terminal	One IEC60309-6H (16A) and one BS1363 (UK) with common earth ground terminal
Power to Control Unit	$120V_{AC}$, 4A NEMA 5-15 plug to IEC60320-C19	$200\text{-}240V_{AC}$, 4A CEE 7/7 plug to IEC60320-C19	$200\text{-}240V_{AC}$, 4A BS1363 (UK) plug to IEC60320-C19
Power to Compressor	$200\text{-}240V_{AC}$, 20A NEMA 6-20P plug to IEC60320-C19	$200\text{-}240V_{AC}$, 16A CEE 7/7 plug to IEC60320-C19	$200\text{-}240V_{AC}$, 16A IEC60309-6H plug to IEC60320-C19

Time to Power Up!

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- Connect the Power Cord to the back of the Control Unit and turn the power switch ON.
- Switch the back of the Compressor ON.

Power Up Order

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- When the Control Unit is powered on, the Compressor should also be powered on.
- It is not important if the PC is powered on before or after the Control Unit and Compressor.
- The compressor should be in the enabled position.
- Red lights should blink on the Cryostat.

Power up the User Interface

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- Turn the power on to the PC. The system should boot up.
- Run the program “Cryostation” from the icon.

- Give it a few seconds to start up.

Startup Screen

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- At start-up you see a Montana Instruments swoosh, as well as text on the progression of the start-up routine.

Quick Tour of the User Interface

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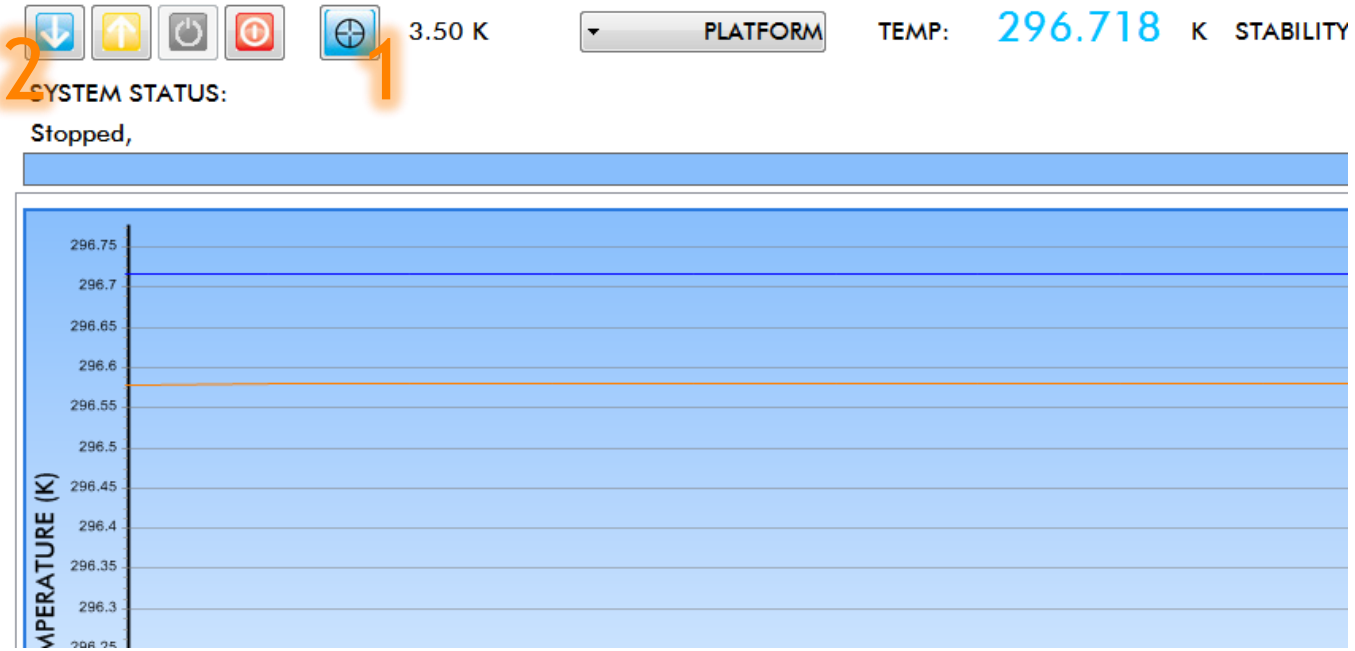
- Now you are ready to cool the sample down
- On the Graph panel, use this to set your “Target” temperature (1)
- Then press “Cooldown” (2)
- You should hear the vacuum pump start up



Quick Tour of the System Tab

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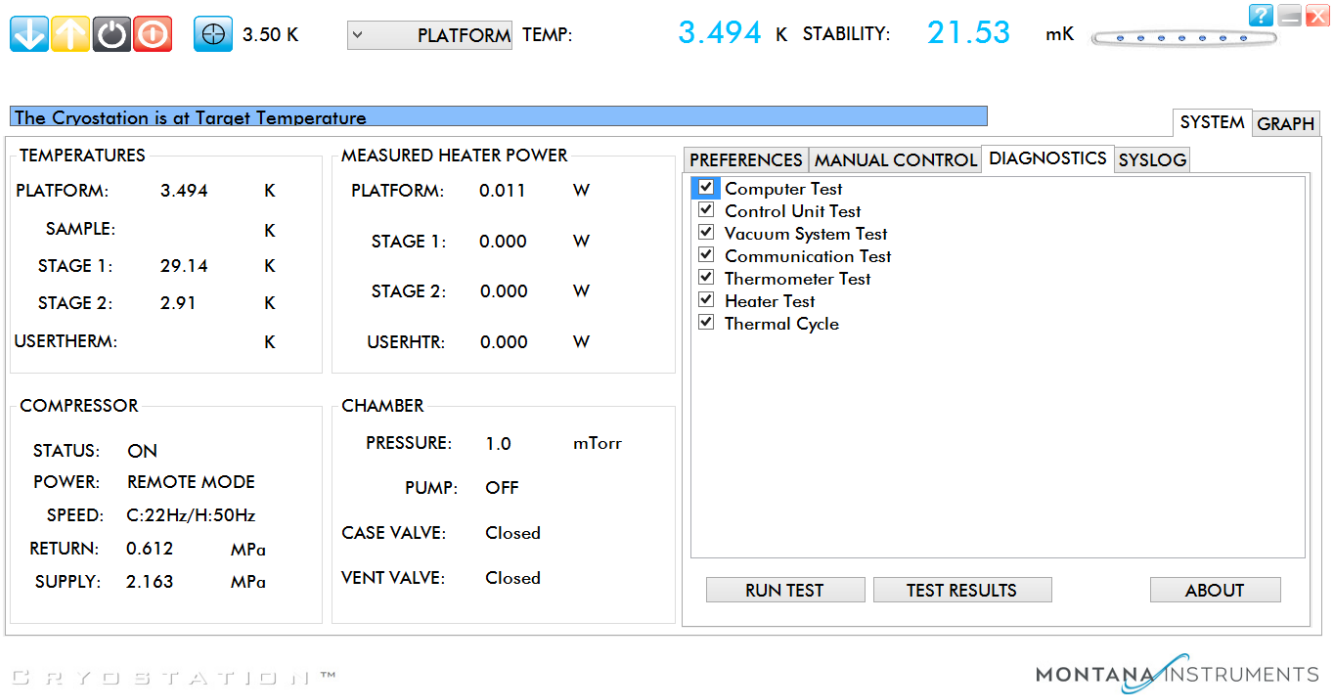
- On the System panel, watch the pressure drop initially, then the Compressor will start up and your system will cool down.



Relax with your User's Manual

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- At this point, you should find and read your User's Manual. There is a lot more information there for you to understand the system and it will help you handle special situations.

Did You Purchase Any Options?

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- If you have additional options there will also be a Manual Addendum about the options specific to your system.

Have Any Questions?

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- Things come up that we can't predict. Just give us a call and we'll help you out.
  - You can also check out our Knowledge Base to find answer to common questions.
- Stay in touch as you need help during your setups.
- When you start getting some results, let us know.
- Have fun!

Thank you

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- We hope the Cryostation is a valuable part of your research equipment. We want to make your experience a success. Please call us if you have any questions.

North America

Customer Engineering Support: Kerry Neal

+1.406.551.2796

support@montanainstruments.com