

CRYOSTAT

SUB-AMBIENT TEMPERATURE CONTROLLER



PRE-INSTALLATION INSTRUCTIONS AND CHECKLIST

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PRE-INSTALLATION DOCUMENT OVERVIEW

This document describes how to prepare a site for installation of the CryoStat. When the enclosed procedures have been completed, signed, and dated, return the document to Micromeritics as outlined in [Commitment Statement and Signature on page 12](#).

The document is organized into two sections:

- **Section 1 - Pre-installation Instructions.** Contain information to help analyze the site and answer the questions in the checklist contained in Section 2 of this document.
- **Section 2 - Pre-installation Checklist.** Contains questions and a checklist about instrument location and the laboratory environment, equipment, and supplies.

SECTION 1 - PRE-INSTALLATION INSTRUCTIONS

UNPACKING AND INSPECTION

When the instrument is received, unpack and inspect the contents of the shipping carton(s). Use the packing list to verify that all products, accessories, software (if applicable), and documentation are received intact and in the correct quantity. The shipping carton(s) and contents should be inspected within a few days of receipt in the event damage or loss has occurred. Sort through all packing material before declaring missing equipment or parts.



Save all shipping cartons where equipment is to be declared as damaged or lost. The claims investigator must examine the cartons prior to completion of the inspection report.

SHIPPING DAMAGE

If equipment is damaged or lost in transit, you are required to make note of the damage or loss on the freight bill. The freight carrier, not Micromeritics, is responsible for all damage or loss occurring during shipment. If damage or loss of equipment is discovered during shipment, report the condition to the carrier immediately. Insurance claims **MUST** be made with the freight carrier, **NOT** Micromeritics.

- Keep all software, manuals, and accessories with the instrument.
- Report any shipping damage immediately to the carrier and follow their directions.
- Report missing or wrong parts to Micromeritics, in addition to any shipping damage, only after filing a claim with the carrier.
- **Micromeritics will NOT file a claim for shipping damage.**
- **Do not discard shipping boxes and containers until installation is complete.**

INSTRUMENT SPACE



ASAP 2020 Plus



3Flex

CryoStat weight. 32 kg (70 lbs.)



Zephyr HC-4A Helium Compressor

- Height.** 71.5 cm (28.2 in.)
- Width.** 45.3 cm (17.8 in.)
- Depth.** 48.8 cm (19 in.)
- Weight.** 111 kg (245 lbs)
- Gas Supply.** 1 square ft (0.1 square m) for each gas cylinder needed for installation

Allow at least 500 mm (24 in.) from the top, front, back, and both sides of the compressor for air flow and maintenance. Air leaving the top of the compressor must flow freely away from compressor and without flowing down towards the inlets.



Lakeshore Temperature Controller

- Height.** 8.9 cm (3.5 in.)
- Width.** 43.5 cm (17 in.)
- Depth.** 36.8 cm (14.5 in.)
- Weight.** 7.6 kg (16.8 lbs)



Edwards Turbo Pump (for 3Flex)

Height.	21 cm (8.5 in.)
Width.	39.5 cm (15.75 in.)
Depth.	35 cm (14 in.)
Weight.	17 kg (37.5 lbs) max

INSTALLATION CONFIGURATION

Standard installation requires the use of 1/8 in. (0.3175 cm) copper or stainless steel gas supply lines, located in the instrument accessories kit.

A nonstandard installation will be created if another gas supply line is used or if the gas cylinders cannot be placed within 6 ft (1.83 m) of the analyzer. There may be additional costs associated with a nonstandard installation. Please contact the Micromeritics Service Manager to discuss a nonstandard installation.

A oil pump cannot be used. Oil vapors can be pumped into the cryostat.

ENVIRONMENTAL FACTORS

POWER

- The instrument and peripheral devices **must** be installed on their own dedicated power line.
- Other devices — such as motors, generators, or ovens — **should not** be placed on the same power line.

TEMPERATURE AND HUMIDITY

Temperature and humidity must be controlled to within:

- **Temperature:** 15 to 35 °C operating; 0 to 50 °C non-operating
- **Humidity:** 20 to 80% relative, non-condensing

Do Not:

- Allow room temperature or humidity to exceed limits.
- Install the instrument where it is exposed to direct sunlight.
- Locate the instrument near air conditioning or heating vents.

VENTILATION

The compressor needs sufficient air flow.

Allow at least 500 mm (24 in.) from the top, front, back, and both sides of the compressor for air flow and maintenance. Air leaving the top of the compressor must flow freely away from compressor and without flowing down towards the inlets.

HAZARDS AND PRECAUTIONS

Inform Micromeritics of any on-site conditions that may present hazards to Micromeritics employees or equipment. Advise Micromeritics of any precautions that need to be taken.

SAFETY MEASURES

Inform Micromeritics of any safety equipment, requirements, or procedures necessary for Micromeritics employees to enter and install the system at your facility.

GAS SUPPLY

GAS CYLINDERS AND GAS SUPPLY LINES

Gas cylinders must be placed within 6 ft (1.8 m) of the instrument inlet valves.

Gas lines not supplied by Micromeritics will not be installed by Micromeritics Service Personnel.

- The customer is required to ensure the purity of gases.
- It is required that the pre-installed yellow Tygon tubing is used.



Gas supply lines made of materials other than copper or stainless steel may cause operational problems.

- **Do not** use gas cylinders with less than 500 psig (3549 kPag) pressure.
- **Do not** use any other gas lines to connect the gas supply to the instrument.
- **Do not** use gas purifiers; they can cause operational problems.

GAS SUPPLY HARDWARE

Micromeritics recommends the gas regulators to be used with the analyzer be purchased from Micromeritics. The regulators Micromeritics provides have been carefully evaluated and tested to provide superior performance.



If purchased from a source other than Micromeritics, please keep in mind that many commercially available gas regulators lack key features which are required for gas adsorption measurements. These vital criteria must be met:

- **Cleanliness.** Clean regulators designed specifically for high-vacuum service are required. Other regulators often contain elastomeric material or oils which can contaminate the gas.
- **High Stability.** Excess pressure at the gas inlet ports to the instrument can interfere with accurate gas dosing and flow rates. The combined change in the outlet pressure from the gas regulator, as the gas cylinder pressure decreases or as the flow rate stops, should not change more than 5 psig (34.4 kPag) from the selected setting. When the instrument is idle for an extended period of time, such as 8 to 10 hours, this same stability of gas delivery pressures should be achieved.
- **Suitable Sub-assemblies.** The regulator must have a shutoff or outlet isolation valve compatible with 1/8 in. (0.3175 cm) or 1/4 in. (0.6 cm) Swagelok[®] compression fittings.



To purchase regulators from Micromeritics, contact your local Micromeritics Sales Representative.

REGULATOR EXPANSION KITS



An expansion kit is needed if using the same cylinder for the compressor and analyzer.

It is sometimes beneficial to attach more than one instrument, and/or accessory device, or different inlet ports to a single gas supply. Any time this is done, it is critically important that there be a means of isolating, or shutting-off, each device attached to the gas supply regulator. Micromeritics recommends the use of a vacuum rated shutoff / isolation valve for this purpose.

This shutoff / isolation valve is required in order to prevent problems when changing gas cylinders or servicing any of the devices attached to the gas supply.

If the need to attach more than one inlet or one instrument and/or accessory device is anticipated, one or more of the following regulator expansion kits must be acquired:

- **004-33601-00** – Regulator Expansion Kit (2 outlet, 1000 psi maximum). This kit contains one T fitting, two vacuum rated shutoff valves, and other necessary hardware. This expansion kit allows gas to be provided to two inlets.
- **004-33601-01** - Regulator Expansion Kit (3 outlet, 1000 psi maximum). This kit contains one cross fitting, three vacuum rated shutoff valves, and other necessary hardware. This expansion kit allows gas to be provided to three inlets.

LABORATORY EQUIPMENT AND SUPPLIES

INSTRUMENT GASES

Helium (99.999%) is required.

ANALYSIS EQUIPMENT AND SUPPLIES

To clean the equipment, isopropyl alcohol is recommended.

APPLICATION RELATED ISSUES

To ensure a thorough installation, it will be helpful for Micromeritics to know which types of samples will be tested. If known, list them in [Application Related Issues Checklist on page 11](#).

Micromeritics offers application assistance through our materials analysis laboratory (Micromeritics Analytical Services).

COMMITMENT STATEMENT / SIGNATURE

Read this document carefully and complete all checklists. If unsure about any part of this document or the checklist, contact the Micromeritics Service Department for clarification. When this Pre-installation Checklist has been completed, see [Commitment Statement and Signature on page 12](#). Sign and date the form, then send it to Micromeritics.

Within the United States, send the completed and signed checklist to one of the following:

Service Operations Manager / 1-770-662-3604

Service.Helpdesk@Micromeritics.com

Micromeritics Instrument Corporation
ATTN: Service Operations Manager
4356 Communications Drive
Norcross, GA / USA / 30093-2901

SECTION 2 - PRE-INSTALLATION CHECKLISTS

For each question, circle **Yes** if the condition applies to your laboratory or **No** if it does not. When this *Pre-installation Checklist* has been completed, see [Commitment Statement and Signature on page 12](#). Sign and date the form, then send it to Micromeritics.

UNPACKING AND INSPECTION CHECKLIST

Unpacking and Inspection		
Have the shipping cartons been unpacked and their contents inspected?	Y	N
Was there any shipping damage?	Y	N
If Yes, has a claim been filed with the freight carrier?	Y	N
Were all items listed on the packing list received?	Y	N
If No, has Micromeritics been notified?	Y	N

INSTRUMENT SPACE CHECKLIST

Instrument Space		
Can the area accommodate the compressor and temperature controller?	Y	N

INSTALLATION CONFIGURATION CHECKLIST

Installation Configuration		
Will gas supply cylinders be available within 6 ft of the instrument gas inlet ports (for standard installation)?	Y	N
Will Helium (99.999%) gas be available?	Y	N

ENVIRONMENTAL FACTORS CHECKLIST

Environmental Factors		
Is power available with the correct voltage and frequency, and a safety earth ground?	Y	N
Are temperature and humidity controlled within specifications?	Y	N
Are hazards present or precautions necessary in area of installation?	Y	N
If Yes , please explain:		
Are safety measures required?	Y	N
If Yes , please explain:		

GAS SUPPLY CHECKLIST

Gas Supply		
Are gas cylinders located within 6 ft (1.83 m) of the area where the instrument will be installed?	Y	N
Were gas regulators purchased from Micromeritics?	Y	N
If NO , do your gas regulators meet Micromeritics' specifications?	Y	N
Required Gases		
Are the following required gases available? <u>The installation will not be scheduled until this gas is available:</u>		
• (CGA 580) He 99.999%	Y	N
Additional Gases		
Additional gases for use after installation can be connected by the Micromeritics service representative. Please list any gases that will be available for connection during installation.		

LABORATORY EQUIPMENT AND SUPPLIES CHECKLIST

Laboratory Equipment and Supplies		
Are sufficient quantities of helium available?	Y	N

APPLICATION RELATED ISSUES CHECKLIST

Application Related Issues		
What types of samples will be tested?		
Will these samples require pretreatment?	Y	N
Will any application assistance from Micromeritics Analytical Services be required?	Y	N

COMMITMENT STATEMENT AND SIGNATURE

I have read this document and understand my responsibilities regarding preparations for the installation of our instrumentation. I believe this site is ready for the system to be installed.

Signature: _____
Name (Printed): _____
Title (Printed): _____
Company: _____
City / State / Zip: _____
Phone Number: _____ Fax Number: _____
E-mail: _____
Instrument : _____ Model: _____ Serial Number: _____
Date: _____

Is the Customer Representative also the End User? **Yes** **No**