

# SUB-AMBIENT TEMPERATURE CONTROL



PRECISE SUB-AMBIENT TEMPERATURE CONTROL DEVICES  
FOR MICROMERITICS ANALYTICAL INSTRUMENTS



## Chiller Dewar

### Liquid Recirculation System

Micromeritics' Chiller Dewar is a closed loop recirculating system that utilizes a high surface area copper coil to provide excellent heat transfer between the dewar and the recirculating liquids. Temperature control is provided through an external recirculating bath or chiller bath which are supplied as accessory items.

The Chiller Dewar is easily mounted to the system's elevator using the supplied clamping screw and bar set. The unit comes complete with all necessary fittings and tubing for connection to the recirculating bath. An external RTD is also provided which mounts inside the dewar. The RTD connects to the recirculating bath and ensures that precise temperature control is maintained over the course of the experiment.

**Available for the following Micromeritics instruments: Gemini VII, TriStar II Plus, ASAP 2020 Plus, ASAP 2460 and 3Flex**

Temperature Range	-50 °C to 200 °C*
Temperature Stability	+/- 0.01 °C

\*Temperature range and stability based on circulating bath performance and liquid media utilized



## FP50-ME Refrigerated/ Heating Circulator

These units provide high heating/cooling capacities to ensure rapid heat-up and cool-down times. With Active Cooling Control to +200 °C, FP models offer proportional cooling control to ensure energy-saving performance and reduce heat generation to the environment.

Temperature Range	-50 °C to +200 °C
Temperature Control	PID, cascade
Temperature Stability	±0.01 °C

## FP25-ME Refrigerated/ Heating Circulator

These units provide efficient heating/cooling. With Active Cooling Control to +200 °C, this model offers proportional cooling control to ensure energy-saving performance and reduce heat generation to the environment.

Temperature Range	-28 °C to +200 °C
Temperature Control	PID, cascade
Temperature Stability	±0.01 °C



## CryoCooler II

### Sub-Ambient Temperature Controller

Micromeritics' CryoCooler II accessory for our AutoChem series provides temperature control from -100 to +1100 °C. The device permits ramping temperatures at rates from 5 to 50 °C/minute, selectable in 1 °C increments. The CryoCooler II seamlessly transitions from sub-ambient to ambient operation. A source of LN<sub>2</sub> is directly attached to an AutoChem furnace for rapid cooling and cycling of the furnace.

**Available for the following Micromeritics instruments: AutoChem II Series 2950 and 2920**

Temperature Range	-100 °C to 1100 °C
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## Cryostat I\*

### Single-Stage Cryogenic Refrigerator Based on the Gifford-McMahon Principle

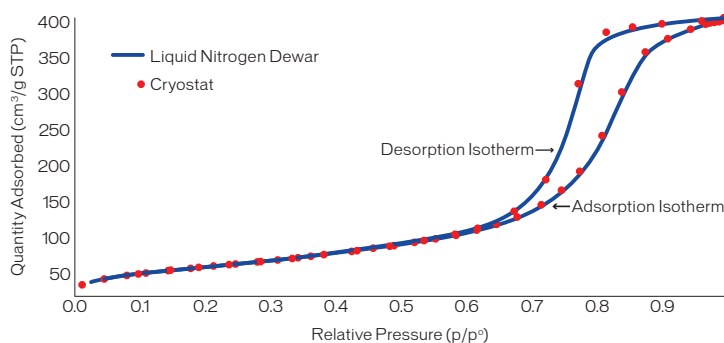
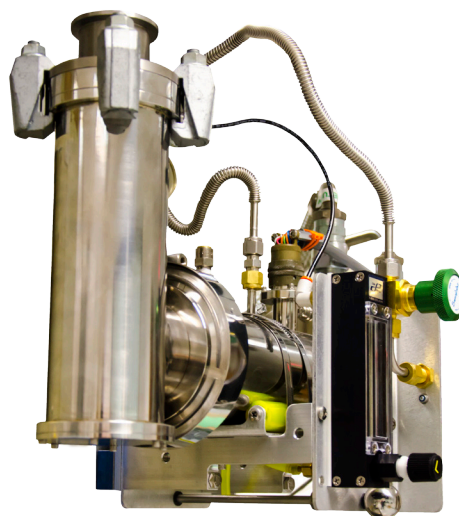
The Micromeritics Cryostat I is a closed-cycle cryocooler based on the Gifford-McMahon (GM) refrigeration principle. It uses helium gas from a helium compressor to generate cryogenic temperatures. The refrigeration effect of the GM cooler results from a series of thermodynamic processes acting on the helium gas that includes: charging and compression, displacement and heat exchange with the regenerator, expansion and heat absorption (cooling effect).

The Cryostat I eliminates the need for liquid nitrogen and can obtain temperatures below the 77 K of liquid nitrogen. The unit is mounted on the Micromeritics instrument with a specially designed fixture. The cold head of the device is positioned at the unit to maintain precise temperature control of the sample tubes. The Cryostat I's cold head is then connected to a floor mounted compressor.

**Available for the following Micromeritics Instrument: ASAP 2020Plus, 3Flex, and HPVA II**

Temperature Range	25 to 350 K
Temperature Stability	$\pm 0.005$ K
Nitrogen Reservoir	closed-cycle helium
Cool Down Time to Stated Minimum from Ambient	60 minutes

\*This product can be custom engineered to fit your specific temperature needs



## ISO Controller

### Sub-Ambient, Thermoelectric Cooled Dewar

Micromeritics' ISO Controller utilizes thermoelectric cooling based on the Peltier principle. The unit is designed to maintain a constant temperature between 0 °C and 80 °C when using CO<sub>2</sub>, N<sub>2</sub>, and other gases for adsorption analysis. The device rapidly cools and efficiently maintains temperature with minimal electrical current required.

The sample area will accommodate up to 3 sample tubes. Heat removal is uniform and accurate when the unit is used with an appropriate liquid (ambient water or liquid antifreeze).

The dewar section is placed on the instrument dewar elevator and then raised into position for analysis.

**Available for the following Micromeritics instruments: ASAP 2020, and 2020 Plus; TriStar II Plus; 3Flex; and HPVA II**

Temperature Range	-5 °C to 75 °C (lab temp <27 °C)
Cooling Capacity	Approx. 80W at 0 °C, 120W at 25 °C
Minimum Controllable Resolution	0.1 °C
Temperature Stability	$\pm 0.1$ °C



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Research Scientist, Global 500 Chemicals Company

Research on Micromeritics by  TechValidate

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To request a quote or additional product information, visit  
[www.micromeritics.com](http://www.micromeritics.com)

Contact your local Micromeritics sales representative,  
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**770-662-3636**



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