

# CRYOCOOLER

cryogen-free temperature controller

TEMPERATURE CONTROLLER



Catalysts



Ceramics



Energy



Carbon



Pharma



One of the most widely used techniques for the determination of surface area and pore size on porous materials is volumetric gas sorption. The technique in itself can be carried out under any temperature, and depending on the material properties and the gas used, the sorption capabilities of the material will vary. Normally, these experiments are performed at below critical conditions like cryogenic temperatures, which are achieved by the use of cryogenics such as liquid nitrogen, liquid argon, and others.

Because having too many storage tanks with different cryogenics can be cumbersome and expensive, there are options available that will allow the researcher to work at various different temperatures without the need of a tank of cryogen for every temperature needed. Quantachrome Instruments offer an option for the **Autosorb-iQ** and **iSorbHP** line of instruments called the **CryoCooler**. The basic workings of this option are similar to those of a regular cryostat, which basically allows the researcher to work over a wide range of temperatures. However, the **CryoCooler** works with the well known technique of gas compression and expansion for providing cooling, which completely eliminates the need for cryogenics to work at low temperatures. What is more, due to the elimination of the cryogen, the limited experimental time imposed by the Dewar has been successfully eliminated, thus allowing experiments to run indefinitely and at temperature ranges starting as low as 20K\* and as high as 320K.



### Some of its main characteristics include:

- Fully compatible with the **Autosorb-iQ** and **iSorbHP**;
- Capable of thermostating up to 2 samples simultaneously on the **Autosorb-iQ2** or **Autosorb iQ3**;
- Wide temperature range going from 20K\* to 320K;
- Unparalleled temperature control thanks to advanced controller, which provides temperature accuracy of up to  $\pm 0.05K^*$ ;
- The system is capable of cooling the sample down to a stable 77K in as little as 1 hour;
- Cryogen-free operation;
- Experiments can be run indefinitely because their duration is no longer dependent on the Dewar life.

\* (with Autosorb iQ)

### Requirements

- **Compressor power:** 208/220V
- **Controller power:** 100/120/220/240V
- Specialty cells to work with the **CryoCooler** are provided.



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## Corporate Headquarters-USA

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