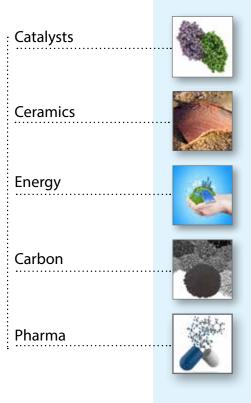


# CRYOCOOLER cryogen-free temperature controler









# CRYOCOOLER cryogen-free temperature controler

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 cryogens such as liquid nitrogen, liquid argon, and others.

Because having too many storage tanks with different cryogens 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 cryogens 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 thermastatting 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 ±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.



## Renowned innovator for today's porous materials community.

The quality of Quantachrome's after sales service support is the reason we are proud to maintain life time relationships with our customers.

#### Field Service

Our global service staff assure you that Quantachrome Instruments will continue to be the reliable engines of material characterization laboratories. We offer you the flexibility of choosing from service contracts tailored to provide you with the response time, service package, and spare parts discounts that best fit your needs.

#### **Spare Parts**

Quantachrome spare parts are certified to work with our instruments. We provide rapid response spare parts orders, and keep large inventories of replacement parts and hardware available.

# **Application Lab**

Our fully equipped, state-of-the-art powder characterization laboratory, email: <a href="mailto:application.qt@anton-paar.com">application.qt@anton-paar.com</a>, provides the option of contracting for expert testing services. Laboratory services are also available to validate the applicability of our products prior to your purchase using your actual samples.

# Lifetime Application Support

We view the field support of our instruments as an essential component of our business strategy. Our expert scientists are always available to answer questions on applications, or the use of our instruments. We do this as a standard service regardless of whether you have a service contract with us or not.

#### Partners in Science

Quantachrome has a scientific research department consisting of world renowned experts in material characterization. Our team conducts collaborative research projects with leading material research labs around the world. They regularly publish articles in leading peer reviewed journals, and speak at technical symposiums around the world.

For almost half a century Quantachrome's scientists and engineers have revolutionized measurement techniques and designed instrumentation to enable the accurate, precise, and reliable characterization of powdered and porous materials. We have an unwavering commitment to providing state of the art technology, along with superior and unparalleled customer service and support.

Our commitment to customers is to support you before, during, and after the sale throughout the lifetime of our instruments. This is a big commitment because our products are so robust and reliable that we regularly find many still in use for decades.

Corporate Headquarters-USA Quantachrome Instruments a brand of Anton-Paar 1900 Corporate Drive Boynton Beach, FL 33426

www.quantachrome.com

Serving Porous Materials and Powder Characterization Needs Since 1968

© 2019 Quantachrome Corporation Rev B





Trademarks and registered trade mark are the property of their respective owners.