

# Chimera

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Cooling and heater chamber  
for powder diffraction



**Oxford**Cryosystems

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## Cooling and heater chamber for powder diffraction

**The Chimera is the new variable temperature chamber for flat plate powder samples from Oxford Cryosystems, with a temperature range of 70- 525 Kelvin, and excellent stability of 0.1 Kelvin.**

Unlike traditional cooling and heater chambers, the Chimera works by incorporating an Oxford Cryosystems single stage Gifford McMahon cooler, meaning that no liquid nitrogen is required.

The chamber offers cooling and heating in one simple system, with no adjustments or alterations required between temperatures. This means that the sample can seamlessly and accurately be ramped from as low as 70 K to as high as 525 K with variable ramp rates as slow as 1K/hour. For this reason, the Chimera will be extremely suited to applications such as phase transition studies, where it is extremely important to move very slowly and accurately through a specific temperature range.

The compact design means the Chimera can be easily fitted to a vertical goniometer from the front with a specific adapter plate designed for each type of goniometer.

### Features of the Chimera

- Temperature range of 70 - 525 K and excellent stability of 0.1 K
- Ramp rates of 1-360 K/hour for complete temperature control
- Cooldown to 100 K from RT in 35 minutes
- Warm up to 525 K from RT in 40 minutes
- Compact head allows easy sample access and can be fitted to most popular vertical goniometers
- Ability to monitor and control remotely via Cryoconnector software and Oxford Connect website

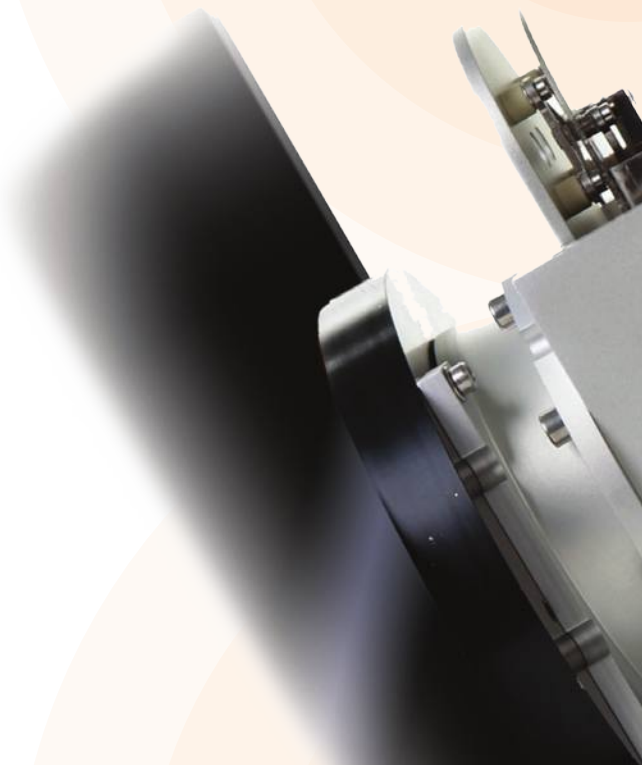
### Mode of Operation

A single stage Gifford McMahon (GM) closed cycle cooler made by Oxford Cryosystems is mounted within the body of the Chimera and operates using compressed helium gas provided by the Cryodrive compressor. It is important to note that there is no helium gas consumption in this system and the helium gas circuit in the Cryodrive/Coldhead combination is sealed.

The sample stage is cooled by conduction between the sample stage and the cold stage of the Coldhead. The Chimera sample temperature is measured at the sample stage.

Heat leaks within the coldhead are reduced by a radiation shield incorporating Aluminised Kapton windows, and the robust Chimera lid incorporates X-ray transparent windows of Kapton.

A number of 20mm diameter chromium plated copper sample stages are provided with the Chimera system, however different materials may be available at an additional charge. A vacuum system (optionally supplied) is used to continuously pump the space around the cryostat to minimise unwanted heat leaks into the system.



## Technical Specifications

Chimera	
Temperature range	70-525 Kelvin
Temperature stability	0.1 Kelvin
Cool down time to 70 Kelvin (from RT)	35 minutes
Warm up time to 525 Kelvin (from RT)	40 minutes
Chimera coldhead dimensions & weight	120 mm W x 302 mm L x 259 mm H, 6 kg
Chimera window materials	Chimera lid incorporating Kapton windows, thickness: 0.3 mm Aluminised Kapton radiation shield, thickness: 0.025 mm
Chimera sample mounts	2 x 20 mm diameter Chromium-plated copper flat sample holder 2 x 20 mm diameter Chromium-plated copper sample holder with 1 mm recess

Chimera Controller	
Dimensions & weight	263 mm W x 141 mm H x 299 mm D, 7.1 kg
Mains Power supply	100-240 V, 50/60Hz
Power Consumption	500 VA

K450 Helium Compressor		
	Electrical requirements	
	50 Hz	60 Hz
Supply Voltage	200 – 240 V	208 – 230 V
Operating Current	17.0 A (@240 V)	15.7 A (@230 V)
Operating Power	3.4 kW (@ 240 V)	3.6 kW (@230 V)
Supply Fuse Rating	20 A (Starting current: 65 A)	
Weights and Dimensions	639 mm H x 610 mm D x 540 mm W, 100 kg	
Water Cooling Requirements	Chiller requirement of 3.0 kW, Typical flow rate 5l/min at 18°C	

Turbomolecular Vacuum Outfit (optionally supplied)	
Dimensions & weight	510 mm W x 740 mm H x 360 mm D
Mains Power supply	220/240V 50/60 Hz or 115V 50/60Hz

## Support for all our customers...

Aside from our development expertise, Oxford Cryosystems have also gained an excellent reputation over the past thirty years for customer service and support. Whilst Oxford Cryosystems' products are known for their reliability and ease of use, users may occasionally require advice on technical aspects of their system. Technical support is offered to all Oxford Cryosystems customers on all products. There are no time limits, no expensive telephone numbers and no small print. If you need support, you'll get it - it's that simple!

## Service when you need it...

Although Oxford Cryosystems design their devices to be as efficient and economical to maintain as possible, products such as the Chimera, due to its mechanical components, will need reasonably regular maintenance.

Therefore, Oxford Cryosystems offers a choice of pre-paid scheduled maintenance packages for complete peace of mind, or the more traditional reactive servicing approach. Whatever route you choose, you can be assured that we will advise you of the optimal service intervals. We simply don't believe in annual servicing for the sake of it - if your product needs servicing only every 2 years, or even every 3, we will tell you! For further details on the service packages we offer, simply contact your local Oxford Cryosystems office or agent.



**OxfordCryosystems**

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## Goniometer Mounting Plate

Oxford Cryosystems has worked with major X-ray companies to design a number of goniometer mounting plates, for different X-ray systems. Please discuss the best option with us or your local agent before ordering the system.

## Oxford Connect

Chimera incorporates our new Oxford Connect feature. By using our Cryoconnector software and registering your system on Oxford Connect, you will be able to:

- Start, program and stop your Oxford Cryosystems device from your PC, tablet or smartphone
- Easily access historical performance data on the Oxford Connect website
- Enable remote technical assistance, allowing faster support of your device
- Receive email notifications when your device status changes

## The Oxford Cryosystems Philosophy

When you buy a product from Oxford Cryosystems, you are investing in over thirty years of research and development in low temperature devices for X-ray crystallography. We see your low temperature device as more than just an accessory; to us, it is central to your research.

Because of our focus on low temperature systems, you will find that every one of our products has superior functionality, reliability and control. For example, the Chimera is built on our proprietary software platform which allows the constant monitoring of a wide range of different inputs and outputs within the system.

The controller then manages a number of unique relationships such as sample temperature as a function of coldhead motor speed or heater power.

These are just a few of the many unique design features engineered into all Oxford Cryosystems' low temperature devices. We take great pride in taking our product development that bit further, so that our customers benefit from the most stable, reliable and efficient devices available.

