

CRYOGENIC WORKSTATIONS FOR NANOTECHNOLOGY EXPERIMENTS



CRYO Industries of America, Inc.

Cryogenic Research Equipment for Nanotechnology Experiments

CIA offer a complete line of cryogenic equipment that will meet your Nanotechnology experimental needs, including low vibration, optical access, magnetic fields in a variety of environments, cryogen free or continuous flow.

With over 26 years experience in designing, manufacturing and testing of cryogenic systems, CIA is able to custom design a systems that meets your specifications!

Low Vibration Rubber Bellows Variable Temperature Closed Cycle Systems

This innovative Cryo Industries cryostat places the sample in vacuum, isolated through a low vibration exchange gas design and flexible rubber bellows.

The result is ultra low vibrations at the sample!

The cooling is provided by a Gifford-McMahn (GM) or pulse tube closed cycle refrigerator for long term cryogenic operation. No liquid cryogenes are needed!

Systems are available with 10 K, 6.5 K and 4 K cold heads with various cooling powers available.

Standard configurations include tubular, optical, Ultra High Vacuum and Narrow Gap cryostats.

Available with operating temperatures down to 3 K.



These ultra low vibration systems are available with a four post stand (as pictured on brochure cover).

Closed Cycle Pulse Tube Variable Temperature Refrigerator Systems



Closed Cycle Pulse Tube refrigerators are an excellent choice for experiments that require low-vibration. The cold head motor and valve unit are separate from the cold finger, resulting in low vibration. Pulse Tube Refrigerator Systems come in either single or two stage systems.

Cryo's Pulse Tube systems are available with either the sample in vacuum (coldfinger) or the sample in exchange gas (top loading). The cold cycle refrigeration systems are available in numerous configurations, that may include:

- Optical or Non-Optical
- Standard, Compact and Sub-Compact sizes
- High or Low Temperature stage

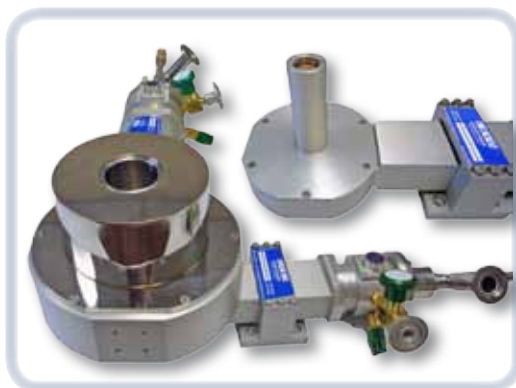
Microscopy Continuous Flow Variable Temperature System

System Features:

- Large clear view windows
Reflection and transmission
Extra thin windows available
- Short working distance
Sample height adjustment
up to the window
- Ultra low nanometer drift and
sample vibration
- 'HiRes-NOMOVE' design results
in near zero movement due to
thermal contraction
- Go THIN - 30 mm thick
'THIN' fits more microscopes



- Compact, lightweight and portable
- Efficient economical operation
- Versatility - expansion kits include
2 inch wafer probing, **DIP IC testing**
- Optional Cryocool Cooling System
with re-circulation package for
**CRYOGEN FREE CONTINUOUS FLOW
OPERATION!!**
- Adding a sample extender kit allows
sample to be inserted into compact
tabletop room temperature bore with
2 or 5 Tesla magnetic field.



Left: Room Temperature Bore Cryostat mated with Microscopy Cryostat.
Right: Extender kit for standard microscopy cryostat- for positioning sample in the center of the magnetic field.

CIA's Microscopy Continuous Flow Variable Temperature Cryostat is one of the most versatile cryogenic systems on the market.



The RC102-CFM Microscopy cryostat offers fast cool down, high efficiency, lowest thermal drift, excellent temperature stability and **ultra low vibration**.

This versatile system has an extender kit which mates to a 2 or 5 Tesla Tabletop Room Temperature Bore.

It also has option of operating with the Cryocool Cooling System for **CRYOGEN FREE OPERATION!**

When operated with the CRYOCOOL COOLING SYSTEM and LHe Recirculation package there is no need to buy LHe again!

Microscopy Cryostat with Cryocool cooling system allows for CRYOGEN FREE CONTINUOUS FLOW OPERATION!



The CRYOCOOL cooling system is ideal for low vibration experiments. The refrigerator vibration is isolated because the cryostat is separate from the refrigerator cryostat.

Cryogen Free Superconducting Magnet System



Cryo offers Closed Cycle Superconducting Magnet Systems that integrate innovative design with magnetic fields that range from 2 Tesla up to 10 Tesla (depending on design), you select the magnetic field. Magnet configurations available include Vertical Field Solenoid or Horizontal Field Split Coil magnets.

Cryo offers Superconducting Magnet designs with a clear vertical room temperature bore or a top loading variable temperature insert or both. The magnet is cooled through a Gifford-McMann cooler or a Pulse Tube cooler for low vibration experiments.

Helium-3 Systems

When ultra low temperatures and low vibration levels are required, CIA's Helium-3 systems are an excellent option.

All CIA Helium-3 models offer quick sample access, fast cooldown, magnetic field compatibility and advanced sorption pump technology. Cryo's He-3 Inserts utilize the latest technology, such as Advance design synthetic charcoal, which gives increased pumping speed, resulting in lower base temperature and enhanced cooling power.

Systems are available with Sample in Vacuum, Top-Loading Sample in ^3He liquid/gas, and Sample in UHV.



L: HE-3 Top-Loading Sample Insert for ATM
R: He-3 PRO Sample in Vacuum

Ultra High Vacuum (UHV) Continuous Flow Cryostats



Cryo offers Ultra High Vacuum continuous flow cryostats, which feature rotatable 'Conflat' interface flanges, your choice of 2.75, 4.50 or 4.62 etc.. Distance from chamber interface to cold finger can be selected to fit exactly your chamber. Construction is all welded stainless steel with low vapor pressure silver brazed copper joints.

These UHV cryostats are equipped with an extra efficient liquid helium transfer line and features low vibration levels and extra efficient helium consumption.



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