CRYOMAGNETICS, INC.
INNOVATIVE TOOLS FOR SCIENTIFIC RESEARCH

C-Mag Automated Liquid Cryogen-FREE Research System

Cryomagnetics' *C-Mag* systems are versatile property measurement systems that provide the researcher with exceptional range, versatility, accuracy, and automation in materials characterization. Based on the latest cryocooler refrigeration technology, the systems are very easy to set up, operate and maintain.

C-Mag Vari-9 System

9 tesla Superconducting Magnet
< 1.6K-325K Variable Temperature Insert.
Remote Motor Option Shown

- ***4.2K Cryocooler Based***

A choice of Pulse Tube or Gifford McMahon configurations eliminate liquid cryogens for the superconducting magnet and are used to condense a small volume of LHe for sample cooling from a closed volume of gas. This allows sample-in-vapor operation from < 1.6K - 325K in continuous flow operation.

- ***Turn-Key System***

Superconducting magnet, 4.2K cryocooler system, superconducting magnet power supply, temperature controller, thermometry, and available Cryomagnetics' exclusive NAVIGATOR™ system control software.

- ***Ease of Use***

Sample changer allows user to change samples without warming magnet or cryocooler.

- ***Dilution Refrigerator and Helium-3 Insert Options***
- ***Ultra-Low Vibration Options Available***

Mechanically decoupled platform available, featuring pneumatically dampened supports, ideal for AFM or other vibration sensitive measurements.

- ***Automated or Manual Gas Handling Systems Available***

Closed loop operation of gaseous helium only for temperature control.

- ***49 mm Sample Space***

Gold-plated, rotatable sample positioner.

- ***Flexible Superconducting Magnet Configurations***

	Optical Versions Available		
Solenoids	**Split Pair**	**2-Axis**	**3-Axis**
Vari-9 (9T)	Vari-7S (7T)	Vari-7/2	Vari-1/1/1
Vari-12 (12T)		Vari-8/2	Vari-5/1/1
Vari-14 (14T)		Vari-9/1	Vari-7/1/1

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Superconducting Magnets and Systems

C-Mag Cryogen-FREE Integrated VTI Systems

- Single Cryocooler for both the magnet and sample
- Low Vibration Options
- Large 49mm sample space
- Solenoids up to 14 Tesla
- Split Pairs up to 7 Tesla
- Multi-axis Configurations
- Upgradeable with dilution refrigerator or He3 inserts

Superconducting Magnets

- Solenoids, split pairs, multi-axis
- Solenoids up to 21 Tesla
- Split Pairs up to 11 Tesla
- 2 and 3 axis Magnet Configurations
- Cryogen-FREE
- High homogeneity
- Ultra-low current
- Compensated
- Actively Shielded
- Custom Configurations

Turn-Key Systems

- Accelerator beamline magnets
- Gyrotron
- Nuclear Demagnetization
- Optical access magnets, microscopy
- OEM
- NMR/EPR
- Magnetic separation

Magnet System Cooling Options

Cryogen FREE:

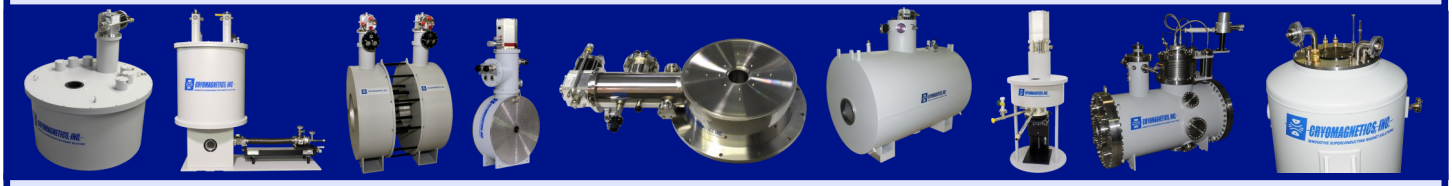
In response to liquid helium becoming increasingly difficult to obtain and afford, most research magnet configurations are now available Cryogen-FREE. Using two stage closed cycle cryocoolers, temperatures of <1.6K (at sample) are obtainable. Vertical or horizontal bores in either room temperature or with integrated inserts are available. Efficient magnet and cryostat designs allow for the use of smaller cryocoolers. This saves both on initial investment and cost of long term operation. Mechanically decoupled sample stages are available as options for low vibration applications.

Recondensing systems:

Integration of a closed cycle cryocooler into a traditional liquid helium vessel allows for the recovery of helium traditionally lost through boiloff. The presence of a helium reservoir allows for operation with ultra low vibration as the cryocooler can be turned off during sensitive measurements (Helium will be lost while operating in this manner). Similarly, in the event of power failure the magnet can be discharged safely using the automatic rampdown feature of the Model 4G Power Supply.

Liquid Helium Cooled:

The lowest initial investment option continues to be liquid helium cooled systems. To help offset the high cost of helium, our efficient magnet designs allow for lower charging currents which result in the lowest boiloff in the industry. Superinsulated or liquid nitrogen shielded dewars are available. Liquid options are still traditionally used for high heat load applications such as rapid



Contact us today to order your configuration!

Additional cryogenic components available:

Model LM-510 Liquid Level Monitor and Sensors
Helium Reliquifier Control System
Model 612/614 Temperature Monitor and Sensors
Model GM-700 Gaussmeter and Sensors
Model 4G Bipolar Superconducting Magnet Power Supply
Current Leads (Vapor cooled, HTS and Duty Cycle Optimized)
Cryogenic Dewars, Vapor shielded, LN2 and Recondensing
Cryogenic Transfer Lines
HTS Magnets
Custom design and manufacture of magnets and cryostats

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