‘SuperVariTemp’ Magnet Inserts
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Cryo Industries’ Sample in Vapor Variable Temperature Inserts (VTIs) fit into the bore of superconducting magnets and provide variable temperatures from <1.4 to 300 K. Samples are cooled by insertion into flowing helium gas exiting from the vaporizer (also known as the diffuser or heat exchanger).

A small amount of liquid helium is drawn from the magnet’s ‘bath’ into the vaporizer located at the bottom of the sample tube. The liquid helium is vaporized and heated to your pre-selected temperature. The gas enters the sample zone and the sample is cooled to temperature of the flowing gas.

Systems are available with choice of many standard sample tube sizes from 0.50” to greater than 4 or more inches. Inserts can be ordered to fit your existing magnet systems.

The ‘Super Variable Temperature’ (SVT) Inserts are available in three styles:

- **Separate (top-loading) Insert**
- **Magnet Support Combo**: variable temperature and magnet support.
- **Combination Insert**: Dynamic SuperVariTemp Insert and removeable Static Exchange Gas Insert: Two Inserts in One!

All styles feature top-loading samples and high refrigeration capacity. All systems can be configured with vapor shielding for extended high temperature operation. Helium-3 inserts are also available which install directly into or interchange with the VTI.

Cryo Industries is able to offer the ‘SuperVariTemp’ Magnet Insert alone or as part of a complete Superconducting Magnet System, that includes:

- High performance dewar
- SuperVariTemp Insert
- Standard Solenoids from 5 T to 17 T
- Liquid Helium Level Probe with electronic readout
- Integrated Superconducting Magnet Power System
- Temperature Sensors
- Temperature Controllers

Mossbauer, Magnetic Measurements, Spectroscopy, Materials Research, Vibrating Sample Magnetometer, Scanning Tunneling Microscope or whatever your needs - CRYO has the capability to design and build superconducting magnet systems to meet your requirements.
‘SuperVariTemp’ Magnet Insert

High Temperature Superconductor Testing
High Current Leads Installed to Sample

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The exchange gas region is turbulent free and provides ultra stable temperatures. When the exchange gas insert is in use, helium vapor flows around (not in) the sample tube. The top-loading exchange gas insert easily removes for standard sample in vapor SuperVariTemp operation.
‘SuperVariTemp’ Insert w/Integral Magnet Support

- Sample Position Adjuster
- 10 Pin Electrical Feedthroughs
- Safety Pressure Relief
- Flow Valve Operator
- Insert Evacuation Valve with Safety Pressure Relief
- Top Flange Bolt Circle: 2.50
- 3.50 Nom. Ladish Flange
- 1.50 O.D. Sample Tube: 5/5
- 1.50 O.D.: 5/5
- Helium Flow Valve with Filter
- 3.00 O.D: 5/5
- Magnet Support Rods
- Crushed Indium Seal
- 1.50 O.D. Outer Magnet Tail: 5/5
- Concentricity Spacer
- Copper Sample Mount with 50 Ohm Heater, Provision for Temperature Sensor and Concentricity Spacer
- Copper VapORIZER with 50 Ohm Heater, Provision for Temperature Sensor and Concentricity Spacer
- Superconducting Magnet
- He Flow Valve with Filter
- magnet Support and SuperVariTemp Insert Combo - single integral unit!
‘SuperVariTemp’ Insert w/PITA Shielding

When insert is run at higher temperatures, Intermediate Radiation Shielding decreases amount of heat that escapes into the helium bath, resulting in reduced helium boil off.