Cryogen-Free Systems

Waveguide, Stinger & FlexLine Systems

Sources of liquid helium have become limited, expensive and delivery unreliable. Bruker now introduces three cryogen-free EPR variable temperature systems for both CW and Pulse EPR spectroscopy. These systems free the spectroscopist from the need to purchase liquid cryogens to attain the low temperatures required for many EPR experiments. These cryostats utilize standard sample tubes and allow rapid sample interchange. All of these cryostats are compatible with the same compressor and controller.

Features of the Waveguide Systems

- Gaseous helium used as heat transfer medium
- < 1 hr to reach base temperature
- Standard quartz insert dewar and sample holder
- Base temperature < 4 K or < 10 K
- Accommodates standard X-Band resonators

Features of the FlexLine Systems

- Negligible gaseous helium consumption
- Optical access
- Base temperature < 5.8 K or < 10 K
- Fits in 56 mm air gap
- Accommodates all FlexLine resonators

Features of the Stinger Systems

- Gaseous helium used as heat transfer medium
- Uses existing ER 4112HV or ER 4118CF cryostats
- Low vibration transfer line

Features of all three Systems

- Requires no liquid helium
- Reduces cost of low temperature experiments
- Two base temperature options
- Low vibration factor means spectra are not affected
- Rapid sample exchange
- Variable temperature base to >150 K

Recirculation Compressor

ER 4112HV-S10 Stinger with ER 4112HV

ER 4112HV-CF10 Installed in 10" Magnet

Cryogen-Free Helium Recirculation System

New development to reduce consumable cost for ER 4112HV-CFx & ER 4112HV-Sx

- Additional compressor recirculates exchange gas
- Adds 3 kW to power/water requirement
- Purifier to remove Oxygen / Nitrogen

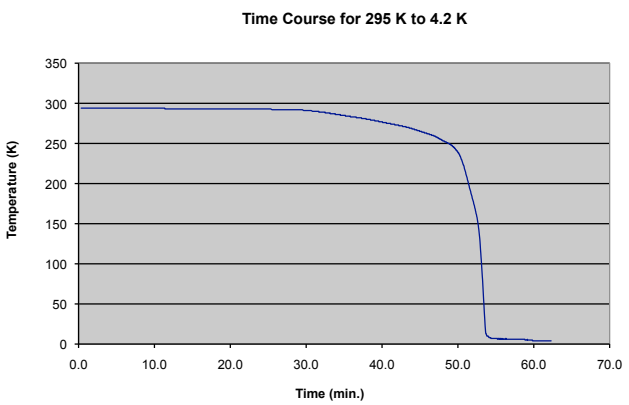
Cryogen-Free EPR VT Systems

- ER 4112HV-CF4 Waveguide Cryogen-Free System Base temperature < 4 K to > 150 K
- ER 4112HV-CF10 Waveguide Cryogen-Free System Base temperature < 10 K to > 150 K
- ER 4118HV-CF5 FlexLine Cryogen-Free System Base temperature < 5.8 K to > 150 K
- ER 4118HV-CF10 FlexLine Cryogen-Free System Base temperature < 10 K to > 150 K
- ER 4112HV-S5 Stinger Cryogen-Free System
  - Base temperature with ER 4112HV < 6K
  - Base temperature with ER 4118CF <5K
- ER 4112HV-S10 Stinger Cryogen-Free System
  - Base temperature with ER 4112HV < 14K
  - Base temperature with ER 4118CF < 11K

System Requirements

- Systems use 99.999% purity helium gas for thermal transfer.
- Additional 7 kW Power and Cooling requirement to system specifications.
- Available in 208VAC 3-phase and 400VAC 3-phase power

ER 4112HV-CF4 Cryogen-Free System



Waveguide Cooldown Profile

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