ICE

DRY ICE DYAD

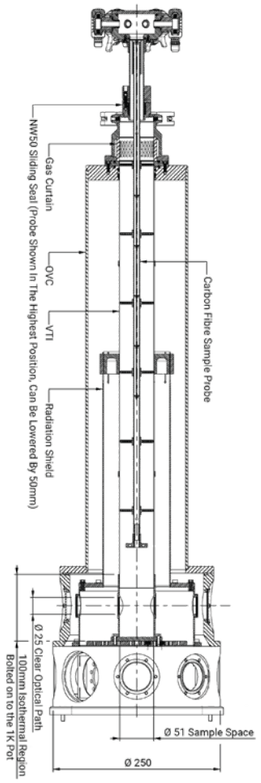
1.7K to 300K

The DRY ICE DYAD is a closed cycle system designed to offer excellent optical access with ultra low vibrations at temperatures down to <1.7K.

The modular design enables the user to switch between helium exchange gas and vacuum sample environments in minutes. The system also includes several vibration reduction technologies to reduce vibration at the sample to a minimum.

Sample in Exchange Gas

The top loading exchange gas module for the DRY ICE DYAD is a patented design which allows the sample to be changed without warming the main body of the cryostat, enabling a 2 hour sample cooldown time. Sample manipulation and rotation can be achieved in up to 6 axes along with high numerical aperture (NA) optical access and magnetic fields up to 9 Tesla.



Sample in Exchange Gas Module

Specifications

- Base temperature: 1.7K
- Interchangable exchange gas and vacuum sample modules
- < 10nm vibration at the sample relative to an optical table
- Short working distance down to 3mm
- 50mW of cooling power @ 2.0K
- 100mW of cooling power @ 3.0K

Customisations

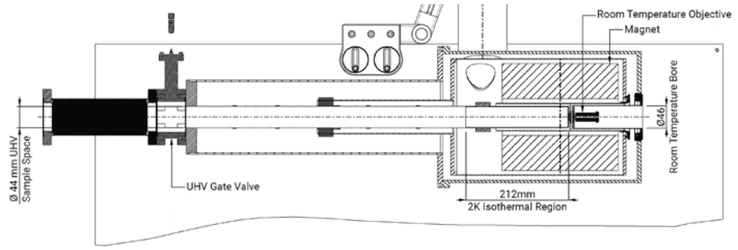
- Split-pair, solenoid and vector rotate magnets up to 9T
- 6 custom wiring ports for DC, RF, Fibre Optic and Coax lines
- Up to 5 windows of a customisable diameter in a variety of materials
- Sample space diameter
- Working distance
- Integration of a wide variety of nanopostioners and objectives

Ultra Low Vibration

The cryostat is separated from the sample space and connected only by a soft thermal link to isolate vibrations from the cold head. Further vibration reduction is achieved by mounting the sample space onto an optical table, also enabling the use of external optics.

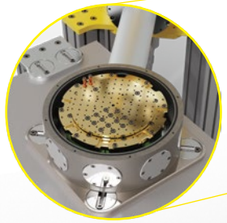
Sample in Vacuum

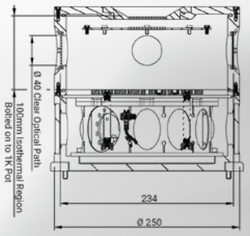
The Sample in Vacuum Module for the DRY ICE DYAD includes a Ø 150mm cold plate on which the sample can be mounted, providing a direct thermal link.The sample space is accessed by lifting the outer vacuum can and radiation shield. The Side Loading Sample Module offers slightly faster cool down due to being a probe loading system enabling sample changes without heating up the entire system. Sample movement and manipulation can be achieved through the integration of low-temperature nanopostioners and up to 3 objectives.



Sample in Vacuum Side Loading Module

Sample platform for the sample in vacuum module





Sample in Vacuum Module

ICE

	DRY ICE DYAD Sample in Vacuum	DRY ICE DYAD Sample in Exchange Gas
COOLING POWER*	25mW @ 1.8K, 50mW @ 2K, 75mW @ 2.3K, 100mW @ 2.9K	
BASE TEMPERATURE†	1.7K	1.8K
SAMPLE COOLDOWN	System cooldown: 14 hours	Probe cooldown: < 2 hours
SAMPLE SPACE	170mm x 110mm	⌀ 50mm
DIAGNOSTIC WIRING	24-way Fischer	
CUSTOMER DC WIRING	Up to 6 custom wiring ports. Constantan, Manganin or Copper looms fitted on request.	
COAX	SS, SC, C, BeCu and NbTi available. Other COAX available on request.	
OPTICAL FIBRES	Available with FC-APC feedthroughs	
ACCESS TO SAMPLE SPACE	Via lifting OVC	Top loading probe
OPTICAL ACCESS	Up to 5 windows	Up to 4 windows
	Sapphire, Quartz and Spectrosil windows. Other materials available on request.	
INTEGRATED SUPER-CONDUCTING MAGNETS	Split-pair, 2D and 3D vector rotate and solenoid magnet options available	
TEMPERATURE STABILITY	± 5mK below 2.5K, ± 20mK between 4K and 50K, ± 5mK above 50K	
SAMPLE ENVIRONMENT	Vacuum	Exchange Gas
VIBRATION	< 10 nm	

* measured at the 1K pot

† with two windows Ø 25mm