

Microstat[®]MO

System for high-resolution magneto-optical measurements



The **Microstat[®]MO** is a compact cryostat, which provides a cryogenic environment ideal for sensitive optical and electrical measurements in magnetic field.

This cryostat provides good spatial stability, easy integration with optical components and is also ideal for quick electrical sample characterisation.

Components:

The **Microstat[®]MO** system consists of:

- **Microstat[®]MO** high resolution magneto-optical cryostat
- Sample holder
- **LLT600** LHe transfer tube
- **ITC503** temperature controller
- **IPS120-10** magnet power supply
- Gas flow pump (optional) for lowest base temperature

Applications:

- Microscopic optical measurements, such as Photoluminescence and Raman scattering under varying magnetic field. Study of microstructures such as quantum dots/wires/wells and nanostructured semiconductor devices.
- Flux visualisation of superconducting materials. 5 T magnetic field extends the range of samples that may be studied to include materials with strong flux pinning.
- Electrical transport measurements using very small currents for nanoscale samples, quantum devices and nano-devices.
- Measurement of dimensional changes of magneto-restrictive materials.

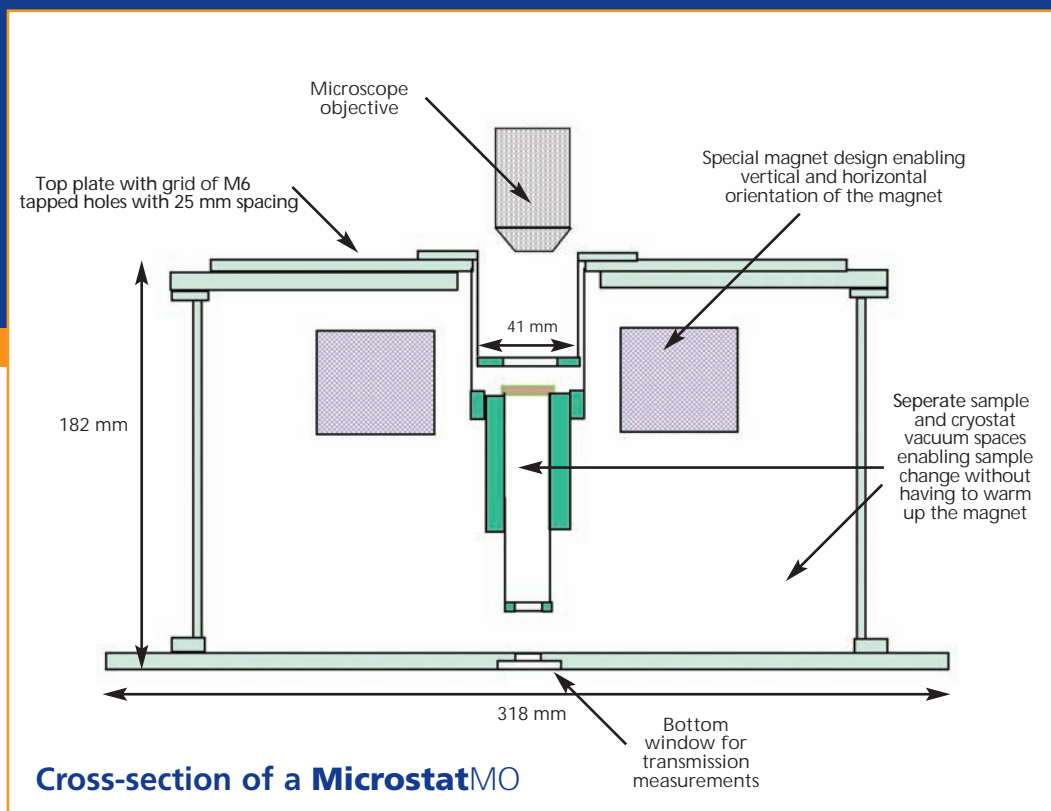
Patent pending

Features and benefits:

- Wide temperature range from 6 K to 300 K
- Magnetic field up to 5 T, satisfying the majority of spectroscopy applications
- Low vibration and sample position drifts (typ. 4 nm/min) enabling high sensitivity measurements
- Convenient continuous operation
- Can be orientated horizontally or vertically, providing flexibility for setting up the experiment
- Mounting bracket supplied to clamp the cryostat to the bench thus reducing vibrations introduced by the transfer tube
- Design for easy integration of optical components on the cryostat top plate
- Quick sample change using a demountable sample holder
- Can be used for reflection and transmission measurements
- Compatible with standard objective lenses
- System can be cooled using pressurised liquid helium dewar for convenient operation with minimum vibration

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Window options:

As standard, the **MicrostatMO** is supplied with a 0.5 mm thick SpectrosilWF top window assembly with 15 mm aperture. Other materials are available on request.



Sample holder options:

The demountable sample holder enables electrical measurements and quick and easy sample change. Two options are available providing either a copper sample platform for lower base temperature or a sapphire platform for optical transmission measurements.

Typical specifications:

Low temperature environment	
Temperature range (on sample holder), using a rotary pump	6-300 K
Temperature stability (measured over a 10 minute period)	<+/- 0.1 K
Cool down time (from 300 K to 6 K)	4 hours
Helium consumption (average)	2 L/hr
Sample working distance	8.5 mm
Sample holder mount area	11x11 mm
Maximum sample thickness	6 mm
Magnetic field environment	
Field at 4.2 K	5 T
Homogeneity (over 5mm diameter sphere)	2%
Stability in persistent mode	0.01 %/hr

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