

Large Bore Coil Set (VSM)

DynaCool (D529) / PPMS (P529) / VersaLab (V529)

The large bore coil (LBC) option extends the utility of the VSM by accommodating larger diameter sample holders (e.g., drinking straws, using the included straw adapter) and pressure cells. The static (DC) magnetic moment can still be measured both as a function of temperature or field using much of the same hardware, and an identical software interface, as the standard VSM setup.

Key Features:

- Greater flexibility in sample mounting techniques
- Ability to use drinking straws as sample holders
- Ability to use pressure cells for magnetic measurements at pressures up to 1.3 GPa
- Operation is identical to the standard VSM option



Comparison of the standard (left) and large (right) bore diameters for the available VSM coil sets.



Various sample holders for VSM measurements. The straw holder (top) and large brass trough are only compatible with the LBC, whereas the quartz paddle, small brass trough (with polycarbonate powder holders and quartz bracers shown), and heater stick (for VSM Oven measurements) can all be used with the standard bore coil set.

Large Bore Coil Set (VSM) Specifications

(for large bore in zero-field, unless indicated)

Magnetic Moment [m]

Accuracy:	$\pm 0.5\%$, using 2.8 mm dia. \times 4 mm tall cylinder (shape of included Pd reference)
Noise Floor*:	$< 1.5 \cdot 10^{-6}$ emu @ 300 K
Additional Relative Noise*:	$3.0 \cdot 10^{-7}$ emu/T or 0.5%, whichever is greater
Max Measurable Moment:	m_{\max} [emu] = 75/Peak Amplitude [mm]

Drive Parameters

Oscillation Amplitude:	0.1 to 5 mm peak, 2 mm (typical)
Oscillation Frequency:	10 to 60 Hz, 40 Hz (typical)
Averaging Time :	0.5 to 750 seconds, 1 second (typical)

Coil Set Dimensions

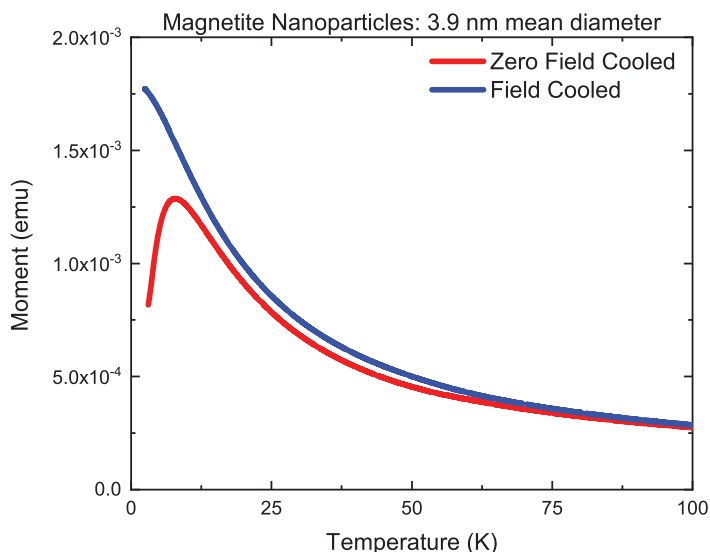
Bore Diameter:	12 mm
Coil Separation:	12.2 mm

Operational Range

1.8 to 400 K; 0 to 16 T

*Parameters are integration-time dependent; stated values are for integration times of 1 second at 40 Hz, 2 mm amplitude excitation. Total observed noise is the sum of the floor and relative components.

Specifications are subject to change without notice.



Field cooled (blue) and zero field cooled (red) curves measured in a 100 Oe field of a magnetite nanoparticle dispersion (3.9 nm mean diameter) exhibiting a blocking temperature of approximately 7 K. Sample provided by V. A. Ortíz-Vergara, M. A. Garza-Navarro, V. A. González-González Universidad Autónoma de Nuevo León, Facultad de Ingeniería Mecánica y Eléctrica.