



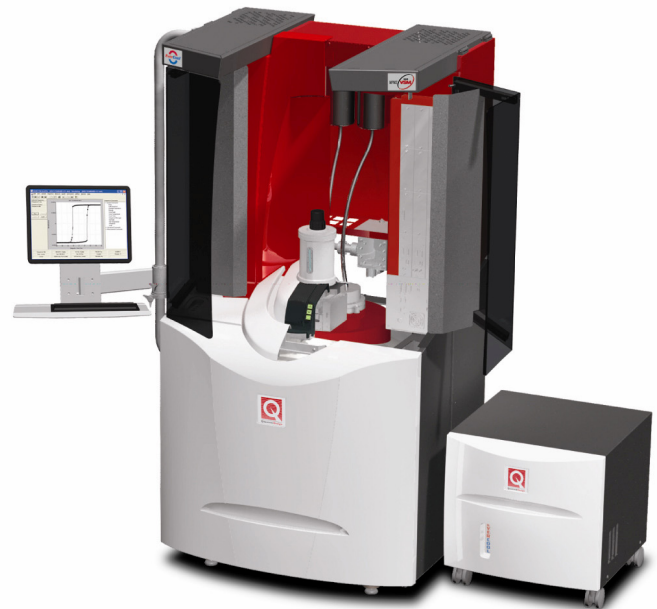
The Quantum Design MPMS® SQUID VSM EverCool® Dewar eliminates the need for liquid helium transfers and virtually eliminates all helium loss from the Quantum Design MPMS SQUID VSM magnetometer system. For the user, this integrated pulse-tube cryocooler-dewar system can be considered cryogen free, as it not only recondenses the liquid helium directly within the EverCool Dewar but also accomplishes its initial cool-down directly from helium gas. This eliminates the need to use any liquid cryogens for the operation of the MPMS SQUID VSM.

Advantages of the MPMS SQUID VSM EverCool system include:

- Only minimal additional space required for the cryocooler compressor
- Initial operating charge of liquid helium is produced from helium gas in as little as 30 hours
- All EverCool functions are fully integrated into the MPMS MultiVu software, allowing virtually automatic operation of all functions, including helium level control in the MPMS SQUID VSM EverCool dewar
- The pulse-tube cryo-cooler requires little or no service.

The MPMS SQUID VSM EverCool Dewar is available as an option on Quantum Design's MPMS SQUID VSM and requires the hook up of an external He gas supply for the purpose of automatically replenishing He gas that is lost under certain conditions (e.g., purging the sample space or using the system under extreme conditions).

## Cryogen-free



MPMS® SQUID VSM system with EverCool®



## Product Specifications

Model:	C060 SQUID VSM EverCool
Helium Liquefaction Capacity:	~ 12 liquid liters/day. This is the net liquefaction rate while the system is running and represents the amount of liquid helium that can be generated in excess of the normal daily system usage.
Nominal LHe Capacity:	~ 16 liters Full capacity is defined when level reaches bottom of magnet.
Estimated Cool-Down Time:	~ 30 hours to reach thermally steady state, ready for normal system operation. No liquid helium is required for cool-down. An additional 20 hours are necessary to reach the normal helium level.
Potential Effect on System Sensitivity:	The EverCool configuration has a permanently running cryocooler, which has no influence on the system specifications. The noise performance is identical to the standard SQUID VSM.
Physical Configuration:	(a) EverCool Dewar with integrated cold head housed in existing standard SQUID VSM cabinet; (b) Pumping module, gas handling control and integrated EverCool controller housed in existing standard SQUID VSM pump console; (c) Compressor with stainless steel hoses connecting to main cabinet.
Physical Dimensions:	Main Cabinet (excl. keyboard arm and compressor hoses): ~ 84 x 104 x 199 cm <sup>3</sup> (L x W x H). Weight: ~ 400 kg. Pump Console: ~ 71 x 61 x 61 cm <sup>3</sup> (L x W x H). Weight: ~ 65 kg. Compressor: ~ 46 x 48 x 62 cm <sup>3</sup> (L x W x H). Weight: ~120 kg. Compressor hoses (pair) - options: ~ 12m length. Weight: ~ 30 kg (pair). ~ 30m length. Weight: ~ 45 kg (pair).
Compressor Power Requirements:	Compressor configurations: 3 Phase 220/230VAC 27A max @ 60 Hz; 3 Phase 460VAC 13A max @ 60Hz; 3 Phase 380/420VAC 16 A max @ 50 Hz; 3 Phase 200/220VAC 27A max @ 50Hz; Power requirement of 9 kW max with a typical consumption of 7.2 kW
Cooling water Requirement: (Water-cooled compressor)	≥9 liters/min @ 28 °C and ≥3 liters/min @ 10 °C.
Maintenance Time on Compressor:	After 20,000 operational hrs (Operational hours recorded by timer on compressor)
Maintenance Time on Cold Head:	No maintenance required.

Note: Detailed configuration information available in the "MPMS SVSM EverCool Configuration Worksheet."