Quantum Design

Dilution Refrigerator

DynaCool (D850) / PPMS (P850)*

***INCOMPATIBLE with PPMS installations using EverCool II option.**

The dilution refrigerator insert for the PPMS enables access to a temperature range spanning 4 K all the way down to 50 mK for a number of compatible measurement options and custom user experiments. Software-automated gas handling of both evaporative and dilution cooling modes enables fast and responsive control across three decades of temperature and enables access to the lowest base temperature possible in a PPMS.

Key Features

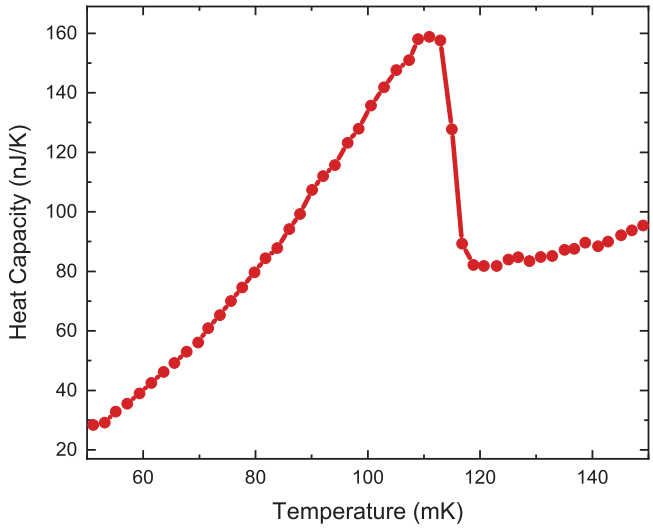
- Software user interface for temperature control is identical to that of the base PPMS, as are sequence commands – all gas handling operations for dilution and evaporative cooling modes are fully automated
- Closed-cycle gas handling loop pre-filled with proper ^{3}He/^{4}He mixture ratio
- Automated maintenance wizards for storing and cleaning cooling mixture to maintain system performance
- Compatible measurement options: AC/DC electrical transport, heat capacity, AC susceptibility

Dilution Refrigerator Specifications

Temperature Control	
Range:	50 mK to 4 K
Accuracy*:	± 10%, for T = 50 mK ± 2%, for T = 300 mK ± 1%, for T = 4 mK
Stability:	± 0.2% or better
Operational Capabilities	
Cooling Power:	0.25 μW at sample stage at 100 mK
Cool Down Time (300 K to 50 mK):	Less than 8 hours; 5 hours typical
Space for User Experiments:	0.88" (22 mm) diameter by 1.4" (35 mm) long cylindrical volume
Operational Range:	0.05 to 4 K; 0 to 16 T

*Quoted up to the maximum field of the PPMS.

Specifications are subject to change without notice.



Zero-field heat capacity data depicting the superconducting transition in $Ir_{0.8}Ru_{0.2}$ occurring near the base temperature of the Dilution Refrigerator. Sample provided by Milton S. Torikachvili of San Diego State University.

Dilution Refrigerator with Transport Puck