

Helium-3 Refrigerator

DynaCool (D825A/V) / PPMS (P825A/V)

The Helium-3 refrigerator insert reduces the ultimate base temperature achievable in the PPMS to 0.4 K so a full four decades in temperature are accessible for compatible measurements. Software-automated gas handling of a variety of specialized cooling modes enables fast and responsive control across the available temperature range with no need for any additional user intervention. Continuous operation is possible down to 0.5 K with optional 'one-shot' operation to achieve temperatures as low as 0.35 K.

Key Features

- Software user interface for temperature control is identical to that of the base PPMS, as are sequence commands – all gas handling operations are fully automated
- Closed-cycle gas handling loop pre-filled with ^3He gas
- Automated maintenance wizards for storing and cleaning cooling mixture to maintain system performance
- Vertical (825V) and horizontal (825A) sample mount configurations available
- Compatible measurement options: AC/DC electrical transport, heat capacity

Helium-3 Refrigerator probe mounted in the integrated gas-handling cart



Helium-3 Refrigerator is available either with a horizontal sample stage (left) or a vertical sample stage (right)

Helium-3 Refrigerator Specifications

Temperature Control

Range*:	< 0.4 K (0.35 K typical) to 350 K
Accuracy**:	$\pm 1\%$
Stability:	$\pm 0.2\%$

Operational Capabilities

Cooling Power:	6 μW at sample stage at 0.5 K 80 μW at sample stage at 1.0 K
Cool Down Time (300 to 0.5 K):	Less than 3 hours; 2 hours typical

Operational Range

0.4 to 350 K; 0 to 16 T

*Indefinite continuous operation limited to a base of 0.5 K; temperatures below 0.4 K achievable for up to 60 minutes at a time using 'one-shot' mode.

**Quoted up to the maximum field of the PPMS.

Specifications are subject to change without notice.