

HPD Rainier 103 RapidCool

Small, Cryogen-Free ADR Cryostat

➤ Overview

The Rainier 103 RapidCool Cryostat (RCC) accelerates cooldown from room temperature to 4 K in just 4 hours (compared to a typical cooldown time of 13 hours). The Rainier 103 RapidCool provides all of the benefits of our popular Rainier 103 cryostat, and also allows you to expedite your experimentation, without delay. You get the best of all worlds: a compact, cylindrical cryostat with a large experimental space; plus, super-fast liquid nitrogen cool down and insulated inlet/outlet lines that prevent frost formation. In addition, our RapidCool features can be used as options on other HPD cryostat models.

Reach 4 K in 4 hours



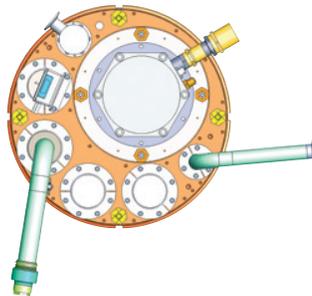
Features

- HPD pulse-tube adiabatic demagnetization refrigerator (ADR)
 - Kevlar suspension
 - 1 K & 50 mK stages
- Cooldown from 300 K to 4 K in 4 hours (see graph below)
- Insulated inlet/outlet lines prevent frost from forming on cryostat
- Actively-shielded ADR magnet for quicker cooldown (no vanadium Permendur shield)
- Nickel plated aluminum radiation shields (50 K, 4 K)
- Electronically controlled motorized heat switch
- Blank Ports available to User:
 - 2X NW50
 - 1X NW25
 - 1X NW63
 - 1x 150mm bottom port (Includes Qty 1 ea of NW25 & NW50 Tee)
- Quick release flanges on vacuum jackets
- Vibration minimizing bellows and jumper cables
- Custom service stand (option)
 - Allows for transport & servicing
 - 30 inches of height adjustment

Design Specifications

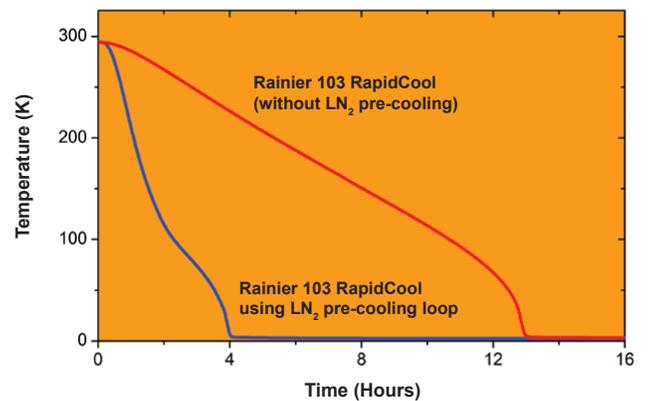
- Large experimental space: 26 cm diameter x 25 cm tall
- Cool down from 300 K to 4 K in approximately 4 hours
- Pulse-tube stage temperatures of 50 K and 2.7 K
- 630 mW cooling power at 4.2 K
- ADR base temperature of 30 mK
- > 250 hours no-load regulation at 100 mK

Top view of 103 RapidCool Cryostat, showing pulse-tube cooler, feedthrough flanges, and LN₂ inlet and outlet lines.



Typical Rainier 103 RCC with customer wiring on Atlas Service Stand

Rainier 103 RapidCool Cryostat Cooldown Comparison



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