

- Cryogen-free ADR design with 0.7 W pulse tube cooler.
- Fully automated ADR control and temperature regulation.
- Base temperature <math><50\text{ mK}</math>, stability <math><5\ \mu\text{K}\_{\text{rms}}</math> at 100 mK.
- Remote rotary valve and vibration isolation at 300 K, 60 K, and 3 K.
- Configurable with:
  - TES X-ray detectors
  - STJ X-ray detectors
  - SQUID readouts, cryocables, custom IR filters

DRC-100 Specifications

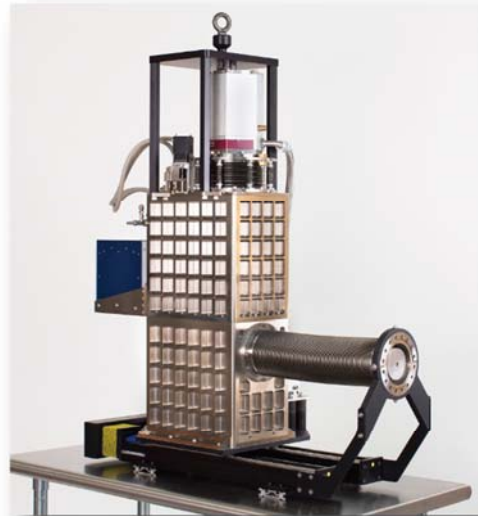
Parameter	Value
Vacuum Jacket Size	33 × 22 × 66 (L×W×H, cm)
Weight	70 kg
Experimental Volume	24 × 15 × 14 (L×W×H, cm)
Primary Cooling	Cryomech PT-407 pulse tube cryocooler with remote valve CP2800 water-cooled compressor
1 <sup>st</sup> Stage Cooling Power	25 W at 55 K
2 <sup>nd</sup> Stage Cooling Power	0.7 W at 4 K
Secondary Cooling	Two-stage ADR, GGG and FAA, 4 T superconducting magnet
GGG Cooling Capacity	1.2 J at 1 K
FAA Cooling Capacity	118 mJ at 100 mK
ADR Base Temperature	<50 mK
Hold Time	>150 hours regulation at 100 mK with no load
Temperature Control Range	Up to 250 mK
Temperature Stability	<5 $\mu$ K <sub>rms</sub> at 100 mK
Heat Switch	Automated
Pressure Monitoring	Pirani Gauge, atmosphere to 10 <sup>-6</sup> Torr
Electrical Feedthrough	DB-25 M, Magnet HDDB-26, Thermometry DB-25 M, Snout coil; auxiliary HDDB-78 M (two); may be customized per customer requirements
Optional Accessories	Service stand; pump and vent manifold SQUIDs, cryocables, snout with detector arrays



System electronics rack



MICA-1600 microcal  
X-ray spectrometer



X-ray spectrometer with  
112-pixel STJ X-detector array for  
synchrotron science applications