

## **Cryogen Free Closed Cycle assembly for flow cryostats**

The Naval Research Laboratory is looking into acquiring a cryogen free closed cycle assembly that will work with Oxford MicrostatHe and Oxford MicrostatHe2 cryostats already available at the Naval Research Laboratory

Specifications that should be met by the cryogen free closed cycle assembly are:

1. The cryogen free closed cycle assembly shall be compatible with Oxford MicrostatHe2/MicrostatHe cryostats
2. The cryogen free closed cycle assembly shall cool down the sample holder inside the Oxford MicrostatHe2/MicrostatHe cryostats to temperatures below 4K
3. The temperature of the sample inside the Oxford MicrostatHe2/MicrostatHe cryostat shall be adjustable from 4K to 325K by adjusting the built in heater supplied by Oxford.
4. The sample vibration at a temperature of 4K shall be smaller than 1 micron
5. The cryogen free closed cycle assembly shall include all the parts needed for proper operation, such as compressors, temperature sensors, helium recirculating system, etc.
6. The cool down time to achieve a temperature of 4K at the sample shall be less than 4 hours.
7. The system shall be delivered fully functional to the Naval Research Laboratory in less than 16 weeks from the time that the order is placed.
8. The cryogen free close cycle assembly shall be able to operate with the Oxford cryostat in any orientation. In other words, horizontally, and vertically both standing up and upside down.
9. The cryogen free close cycle assembly shall be removable, in order to still be able to run the Oxford cryostats with the transfer line supplied by Oxford.