

Cryogenic Technology

RUTHERFORD RECONDENSER

Specification

- Height 250mm
- Weight 17kg

Applications

- Cryocooled Systems
- Superconducting Magnets

Benefits

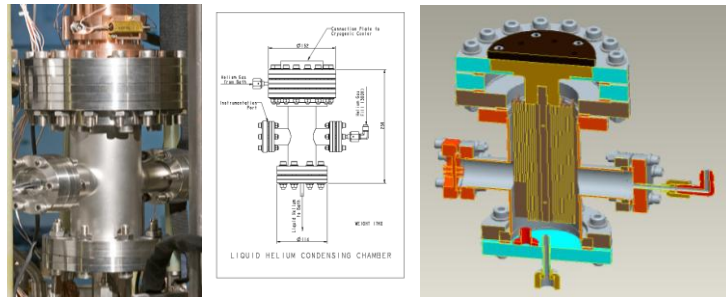
- No cryogen consumption

Status

- Available for Sale from Cryox or Sumitomo

Contact

- John Vandore at Cryox



The Rutherford Recondenser [RR] is a new, cost-effective design, developed at the Rutherford Appleton Laboratory near Oxford as an accessory for cryocoolers, to liquefy helium and other cryogens in closed systems designed for effective cooling of a large dispersed mass like a superconducting magnet from a single cold head.

The system includes a port for fill and top-up with helium (or other gas). In operation, warm gas is piped back to the unit, condensing on the plates of the heat exchanger which is thermally linked to the cold head; gravity feed of condensed liquid creates a syphonic effect. An additional instrumentation port allows liquid level sensing, with a heater to provide modulation and control. Material certification can be supplied to EN 10204 Level 3.1, with batch traceability of weld consumables. The design accords to Pressure Vessel Code PD5500, with 2.5 bar test pressure, and overpressure limited to 2.2 bar. It falls within the PED category covered by Sound Engineering Practice (ie no CE Mark).

While the prototype RR design was configured to match a two-stage Sumitomo RDK-415D Gifford McMahon 4.2K cooler, and tested on a 4 metre long superconducting helical undulator magnet, other RR specifications have been configured and offered on alternative coolers including pulse tube designs. Under a reciprocal marketing agreement with Sumitomo, Cryox can offer a complete recondensing package, comprising cooler and recondenser, while maintaining the original Sumitomo warranty. This package can be incorporated and piped in to the client's system. Alternatively, it can be supplied complete with bespoke cryostat to the client requirement.

Cryox Limited Rutherford Appleton Laboratory, Harwell Science & Innovation Campus, Didcot, Oxfordshire OX11 0QX England
+44 1235 446026 www.cryox.co.uk john.vandore@stfc.ac.uk