
Case Study

Case Study – Diamond Light Source

Customer: Diamond Light Source, Harwell Science & Innovation Campus
Sector: Scientific Research Infrastructure

Background

Diamond Light Source is the UK's national synchrotron facility, operated as a not-for-profit company and funded by UK Research & Innovation (UKRI) and the Wellcome Trust. Located at the Harwell Campus, it **provides state-of-the-art scientific infrastructure**, including advanced electron microscopy and cryo-electron microscopy, to more than 14,000 researchers across life and physical sciences. The facility operates as a **free-at-point-of-use national resource**, enabling high-impact research from fossil analysis to jet engine development and vaccine discovery.



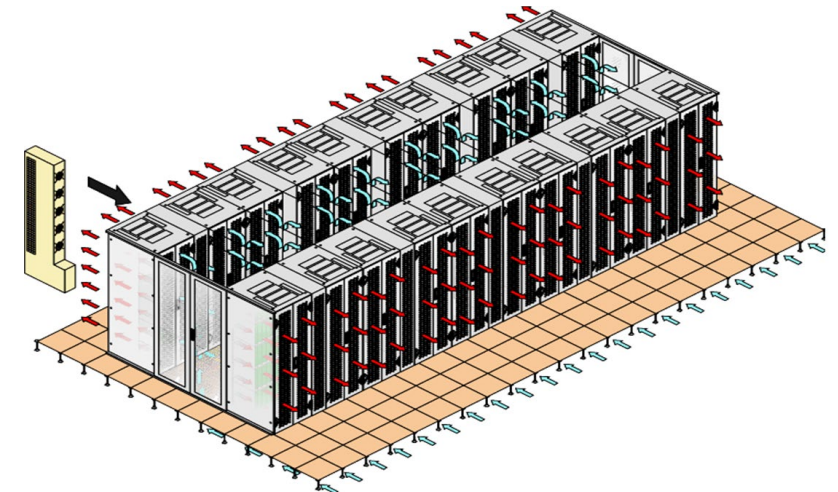
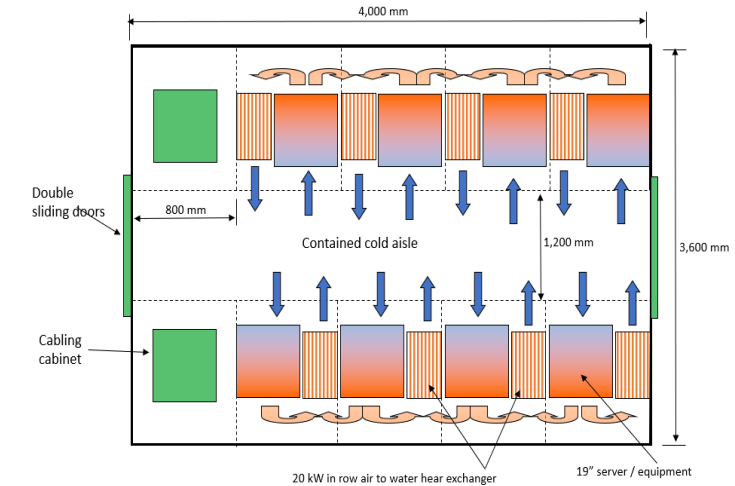
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Project Scope

In **May 2008**, Rainford Solutions, in partnership with Schroff UK, secured a tender to deliver a complete air containment-based cooling system. Rainford Solutions was responsible for the design, manufacture, and implementation of a bespoke rack and air containment solution, including:

- Ten high-performance equipment racks, with 20 kW cooling capacity on eight racks and 5 kW on the remaining two.
- Integrated IEC sockets and control systems.
- Finish to RAL 1015 Light Ivory standard.
- Site installation, testing, commissioning, and provision of essential spares.
- Ethernet cabling infrastructure.
- Design, manufacture, and installation of pipework, including testing and fitting.

Schroff UK supplied and commissioned the air handling units.



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Technical Delivery

The system comprised eight Varistar LHX 20 units with integrated air-to-water heat exchangers, plus two cabling cabinets. This configuration provided a total cooling capacity of 144 kW, achieved at a 9°C water flow rate and 2.8 cubic metres per hour. Cabinet dimensions were 42U height, 800 mm width, and 1,200 mm depth, mounted on 200 mm plinths. A fully contained cold aisle was implemented to maximise cooling efficiency, with double sliding doors at each end to maintain airflow integrity.

