

Double ADR Magnet

The double ADR magnet has been designed and manufactured by Scientific Magnetics on behalf of the Mullard Space Science Laboratory as part of the European Space Agency XEUS X-ray astronomy programme. The magnet consists of two sets of coils, each producing 3.0 T. The coils are actively shielded to allow independent operation, and to reduce the stray field.

Because the magnet will operate in space, it is completely cryogen-free, and cooled by conduction to a cryocooler. To minimise the heat load to the cooler, the magnet has been wound with ultra-fine wire (0.1 mm diameter insulated), giving an operating current of less than 2.3 A at full field.

Features

- Two independent crystal sections
- Very low operating current
- Fully actively shielded for low stray field
- Cryogen-free operation
- Small crystal separation and overall length



Specification

1st stage crystal length	97 mm
2nd stage crystal length	148 mm
Crystal field	3 T
Field uniformity over crystals	80 %
Operating current	2.3 A
Crystal centre separation	222.5 mm
Coil cold bore	65.25 mm