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## The cool alternative to liquid helium.

Researchers using low temperature inserts and superconducting magnets for their research are facing the increasing problem of liquid helium supply and pricing. Oxford Instruments NanoScience has developed a recondensing dewar, the Integra<sup>TM</sup>AC, which considerably reduces the liquid helium consumption of Oxford Instruments low temperature inserts and superconducting magnets. Researchers are able to keep their existing equipment causing minimal disruption to their experiments. Oxford Instruments has already shipped five systems. Professor Rimberg from the Physics and Astronomy department of Dartmouth College commented: "The IntegraAC provided us with the option of using either of our existing dilution refrigerators with a recondensing cryostat rather than purchasing entirely new systems. It has also completely changed our approach to sample screening. Since the cryostat is always cold, costs associated with cooling a sample are minimized. Even more importantly, the Integra AC has cut helium consumption for our largest cryostat by 80%, allowing us to stay cold longer and make the most of our limited liquid helium budget".

Professor Tarucha from the Department of Applied Physics Graduate School of Engineering at the University of Tokyo in Japan is so satisfied with his system that he decided to order a second one. He commented: "Although we have a helium liquefier on site, we have many dilution refrigerators, <sup>3</sup>He inserts and superconducting magnets in our laboratory. We decided to purchase a recondensing dewar rather than a Cryogen-free system because we were able to carry on using all our existing equipment while significantly reducing our helium consumption and labour cost. Furthermore using the IntegraAC had absolutely no effect on our highly vibration-sensitive experiments for measuring a very small current down to 100 femto amperes. We believe we are now prepared to face the rising problem of helium shortage."



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Issued for and on behalf of Oxford Instruments NanoScience

**For further information and electronic copies of the images please contact:**

Sophie Walker  
Marketing Communications Manager  
Oxford Instruments NanoScience  
e. [sophie.walker@oxinst.com](mailto:sophie.walker@oxinst.com)  
t. +44 (0)1865 393349  
f. +44 (0)1865 393333

**Notes to editors**

About Oxford Instruments NanoScience and Oxford Instruments plc.

Internationally recognised as world leaders in superconductivity and ultra low temperature cryogenic environments, Oxford Instruments NanoScience is driving innovation in these fields. The company's leading-edge technologies support research in nanotechnology, solid state and condensed matter physics. Combining outstanding technical expertise, original thinking and a commitment to meeting customers' needs, Oxford Instruments NanoScience enables real advances both in research and commercial applications by providing the high quality technological environments needed to meet demanding experimental requirements. Oxford Instruments NanoScience is part of the Oxford Instruments plc group.

The Oxford Instruments plc group designs, supplies and supports high technology tools, processes and solutions with a focus on physical science, bioscience, environmental and industrial research and applications. It provides solutions needed to advance fundamental nanoscience research and its transfer into commercial nanotechnology applications. Innovation has been the driving force behind Oxford Instruments' growth and success for 50 years, and its strategy is to effect the successful commercialisation of these ideas by bringing them to market in a timely and customer-focused fashion.

The first technology business to be spun out from Oxford University fifty years ago, Oxford Instruments is now a global company with over 1,500 staff worldwide and a listing on the London Stock Exchange (OXIG). Its objective is to be the leading provider of new generation tools and systems for the Physical Science and Bioscience sectors.

This involves the combination of core technologies in areas such as low temperature and high magnetic field environments, Nuclear Magnetic Resonance, X-ray electron and optical based metrology, and advanced growth, deposition and etching. Our products, expertise, and ideas address global issues such as energy, environment, terrorism and health and are part of the next generation of telecommunications, energy products, environmental measures, security devices, drug discovery and medical advances.

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