



Proteox™ 5mK

Characterise new materials

< 5 mK base temperature

> 25 μ W cooling power at 20 mK

#ColdIsTheNewCool

OXFORD
INSTRUMENTS

Proteox™ 5mK

Lower electron temperatures and improve resolution of quantum states for new material characterisation

- > **Characterise exotic quantum states**
Investigate exotic quantum states such as Majorana Fermions and Fibonacci Particles for next generation qubit development using the fractional quantum Hall effect
- > **Reduce measurement error**
Lower temperatures reduce measurement errors to enable further improvements in metrological standards
- > **Explore quantum thermodynamics**
Uncover the quantum nature of heat, with applications towards quantum refrigerators and improved ultra-low temperature thermometry
- > **Increase qubit coherence**
Lower temperatures have the potential for increased qubit coherence times for quantum computing and quantum annealing

Key Specifications



Base temperature	< 5 mK
Cooling power at 20 mK	25 μW
Cooling power at 100 mK	850 μW
Sample space diameter	360 mm plate
Line-of-sight access	1 × ISO100, 1 × KF63, 2 × KF40, 2 × KF25
PTR options	1.5 W or 2 W
Temperature control range	5 mK to 30 K with magnet at full field
Magnet options	Solenoid: Up to 14 T, with field cancellation to < 10 mT Vector Rotate: Up to 9,1,1 T

Proteox Platform

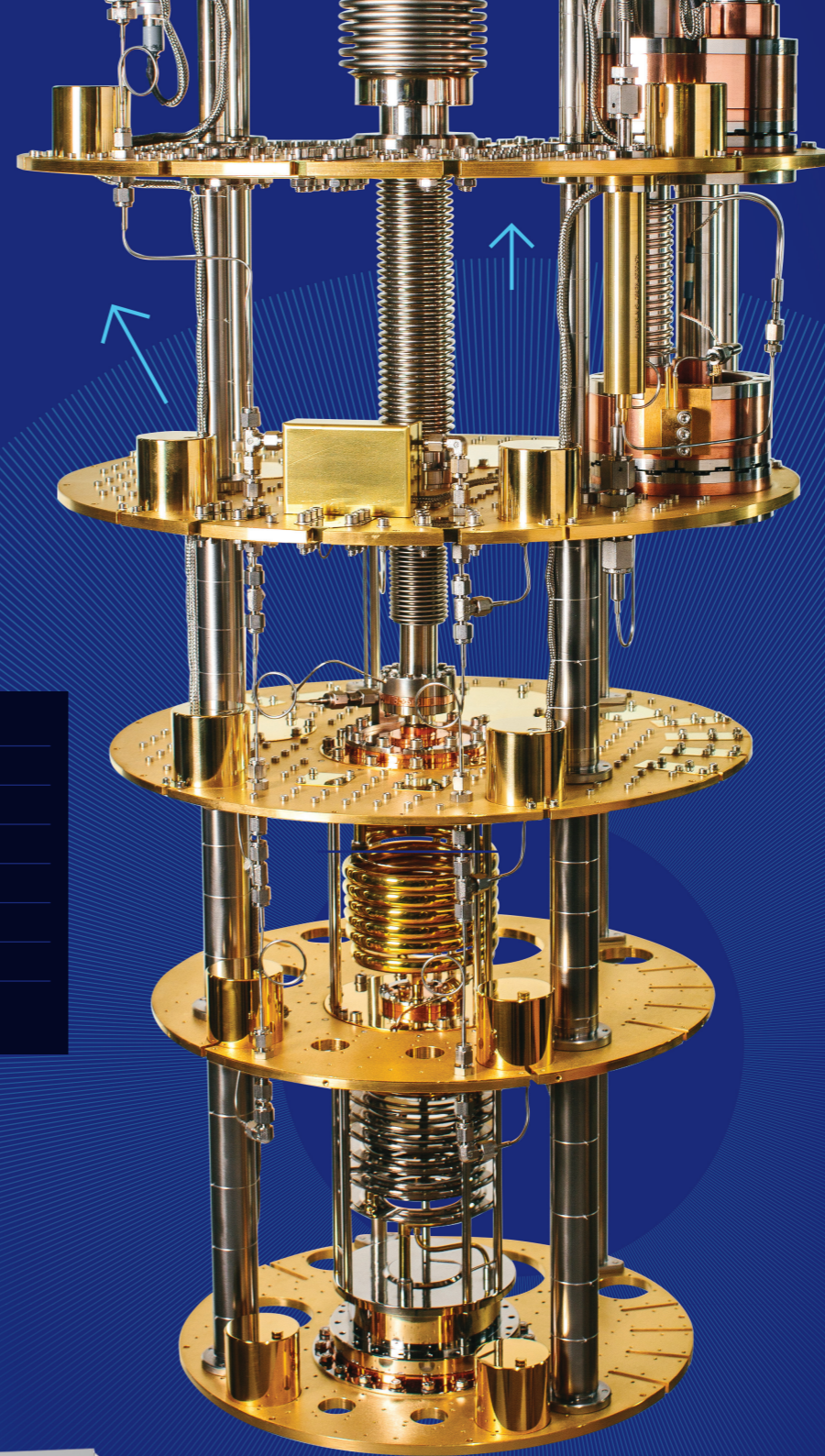
Optimised to provide long term reliability, stability and ease of use

Software

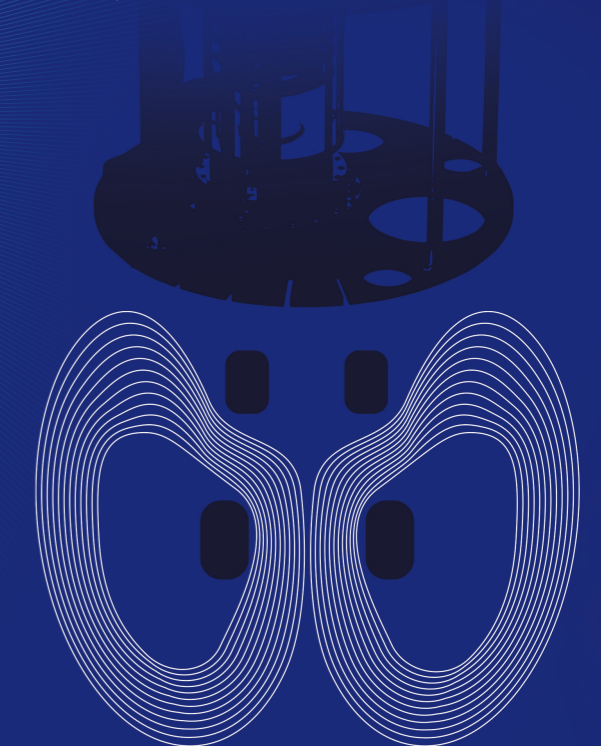
- > **Remote access** through a web-based, platform-independent control software in addition to local system control
- > **Improved automation** routines for one button operation
- > **Full manual control** and programmable API interface for custom routines
- > **Powerful data interrogation** and visualisation package with live plotting

System

- > Fully redeveloped gas handling system to ensure the minimum number of connections for **long term mixture retention**
- > Cross-braced, stiffened frame for **maximum vibration reduction** eliminates the need for active damping
- > **Modular, upgradable platform** with cross-compatible magnet systems



- > **Low vibration for reduced eddy current heating**
High stiffness, flexible bellows and optimised resonance to reduce pulse tube oscillations and harmonics, eliminate the need for active vibration damping
- > **Easily install experiment services**
Clear system plate layout maximises space and ease of access for experiment assembly
- > **High capacity for flexible wiring and line-of-sight access**
Six line-of-sight ports and nine non line-of-sight ports for coaxial and DC wiring
- > **Expanded temperature range for high field experiments**
Active gas gap heat switches enable control to above 30 K at full field and rapid return to base temperature in less than 4 hours



Lower electron temperatures with Oxford Instruments' coldest Proteox dilution refrigerator
Oxford Instruments' coldest continuous operation Cryofree® dilution unit provides an ultra-low base temperature of < 5 mK and high cooling power of > 25 μW at 20 mK for optical access and Piezo positioners

Active Magnetic Field Cancellation
Our actively cancelled magnets ensure the lowest possible experimental base temperature through reduced eddy current heating, with cancellation to < 10 mT at the mixing chamber plate

Service Support Options



LiveAssist

LiveAssist remote support empowers your technical staff to resolve issues fast and effectively. Our team of service and engineering professionals use the latest virtual reality tools to support you remotely.



Proactive Support Plan

Offering unlimited access to a dedicated Proactive helpdesk and annual service visit that includes maintenance, training, parts, shipping, and travel. The Proactive Support Plan package is for those who require a higher level of guaranteed support.

Related Products



Proteox™

Modular platform for qubit scale-up and cold electronics integration utilising a customisable Secondary Insert



Nanonis Tramea™

Fully integrated measurement ready solution for quantum transport



Cryogenic filters

Reduce noise with low bandpass filters for lower electron temperatures



SampleProtect™

Protect sensitive samples from electrostatic discharge

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