

The magnet is only the beginning

Whatever your experimental need for variable magnetic field and temperature, **Teslatron^{TMPT}** - the **Cryofree[®]** integrated magnet system has the solution. The wide range of different experimental inserts enables you to configure your measurement platform for cutting-edge applications, such as 2D materials, nano-structures, superconductivity and many others.



Flexible – a wide range of experimental inserts to suit many applications

Configurable – match the system capability to suit your needs and budget now

Powerful – get milliKelvin temperature in your standard system

Upgradeable – start with a simple system and add extra capability as your experiments evolve



The Business of Science[®]

*Up to 18 T available on request



Graphene measurement probes

Unique probes developed with Professor Barbaros at the National University of Singapore, specifically for graphene research offering the following benefits:

- **Sample in vacuum** – protect your sensitive sample from contamination
- **Sample heating** – outgas (or ‘anneal’) your sample by heating it to 420 K. Each probe is fitted with its own temperature sensor and heater
- **Chip carrier sample mount** – easy to achieve multiple electrical connections to your sample, up to 48 wires
- **Sample rotation** – change the perpendicular field angle relative to the sample
- **Wide temperature range** – with the probe loaded into the variable temperature insert (VTI) of the **TeslatronPT** system sample temperatures between 1.6 K and 300 K can be achieved, even with the sample in vacuum



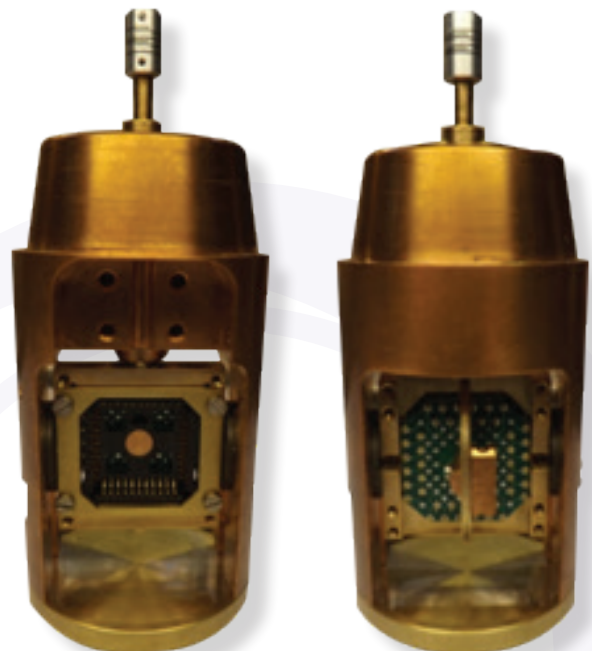
Ask us about our complete graphene packages with 12 or 14 T, 50 mm VTI TeslatronPT systems

With over 50 systems installed globally, the **TeslatronPT** is making a great impact on world-leading scientific research.

Read an application note from Prof. Barbaros Ozyilmaz at National University of Singapore on his experiments for the development of a graphene-based spin field effect transistor.



Download from www.oxinst.com/teslatronpt



Ultra low temperature inserts

If you need high magnetic fields and ultra-low temperatures, the **TeslatronPT** offers a unique solution. The **HelioxVT** and **Kelvinox®JT** refrigerator inserts extend the sample environment to milliKelvin temperatures. Because both the magnet system and the inserts are made by Oxford Instruments, they are fully integrated providing a turn-key cryogen free system.

HelioxVT

The **HelioxVT** is a **Cryofree** single-shot ³He refrigerator offering the best combination of specification, experimental access and flexibility. Advanced sorption pump technology provides the lowest base temperature, long hold time, and increased cooling power.

KelvinoxJT

KelvinoxJT is a **Cryofree** dilution refrigerator offering the widest temperature range, continuous operations, unrivalled versatility, and ease of use with a fully automated gas handling system.



24 way experimental wiring
IVC pump port



HelioxVT	
Sample environment	Vacuum
Sample space	43 mm sample space for a 50 mm VTI
Base temperature	300 mK for 40 hours
Maximum temperature	300 K
Cooling power	50 μW at ≤ 350 mK for 6 hrs
Temperature stability	± 3 mK at T ≤ 1.2 K
³ He regeneration time	40 min

KelvinoxJT	
Sample environment	Vacuum
Sample space	43 mm sample space for a 50 mm VTI
Base temperature	25 mK
Maximum temperature	300 K
Cooling power	20 μW at 100 mK
Temperature stability	± 1 mK at base temperature

Unique system features, by design:

- Wide range of standard magnets with fields up to 14 T* in a compact geometry
 - High grade, low hysteresis loss Nb₃Sn superconducting wire to offer the minimum field hysteresis via remnant field, and minimised – typically zero – low field flux jumping
- Integrated variable temperature insert providing sample temperatures between 1.5 and 300 K
 - Protects your sensitive samples from gas flow with static exchange gas cooling
 - Blockage-free operations using a sealed circulation loop separate to the sample exchange gas

*Up to 18 T available on request

Insert features and options:

- Wide range of standard sample rods with height adjustment and rotation options
 - Select from the huge range of different options for DC and RF wiring to the sample
- Special rotation probes for graphene research with sample in vacuum and 400 K upper temperature
- Extend the base temperature range to < 300 mK with the **HelioxVT** ³He refrigerator
- The **KelvinoxIT** dilution refrigerator provides a fully cryogen free system with a temperature range of <25 mK to 300 K

Mercury temperature controller and magnet power supply:

- Optimised for integration with the **Teslatron^{PT}**
- Intuitive touch screen interfaces and remote software control allowing direct and remote control of your **Teslatron^{PT}** system
- The **MercuryiTC** programmable temperature controller has the best-in-class measurement capability via constant voltage excitation
- The **MercuryiPS** features a bi-polar, high-stability, four quadrant power supply and on board temperature sensing for diagnostic monitoring of magnet temperature.
- Connectivity and control via multiple remote interfaces



Our support to you

Because Oxford Instruments is unique in designing and manufacturing more of the complete system than any other company, we are able to offer unrivalled support and expertise for your **Teslatron^{PT}** system through our regional Customer Support teams backed by unmatched factory expertise.

Visit www.oxinst.com/teslatronpt or email: nanoscience@oxinst.com

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