Heliox™

^{3}He systems to suit all applications

System selection

Experiments at temperatures around 300 mK with single shot ^{3}He refrigerators

- Quick turnaround time
- Ease of use
- Compact size

HelioxVL

- Neutron or X-ray scattering experiments
- No liquid He in horizontal sample path

HelioxVT

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HELIOX

Which **Heliox** is right for you?

When choosing a **Heliox** system, there are technical parameters that you need to consider in order to achieve the desired instrumentation for your research.

The **Heliox** range of single shot ^{3}He refrigerators offers the best combination of specification, experimental access and flexibility. Advances in sorption pump technology reduce base temperature and helium consumption and increase cooling power.

In addition, Oxford Instruments can design tailored ^{3}He refrigerators to suit your particular experimental requirements. All models include a control system which can be operated stand alone or integrated into a PC controlled measurement system via LabVIEW™.

Base temperature

The base temperature, quoted in mK, is achieved with no heat load applied.

Cooling power

Cooling power is dictated by the ^{3}He evaporation rate and consequently the pumping speed of the system. The cryogenic sorption pump technology used in the **Heliox** family provides an extremely high pumping speed in a much reduced system size. The cooling power is quoted at 300 mK.

Hold time

Expressed in hours, hold time is governed by the total heat load on the ^{3}He pot and the total charge of ^{3}He condensed inside the pot.

Regeneration time

This parameter indicates the preparation time required before being able to restart the experiment.

Sample environment

- The sample is accessed by removing the insert from the cryostat, warming to room temperature and removing the inner vacuum chamber (IVC) tail

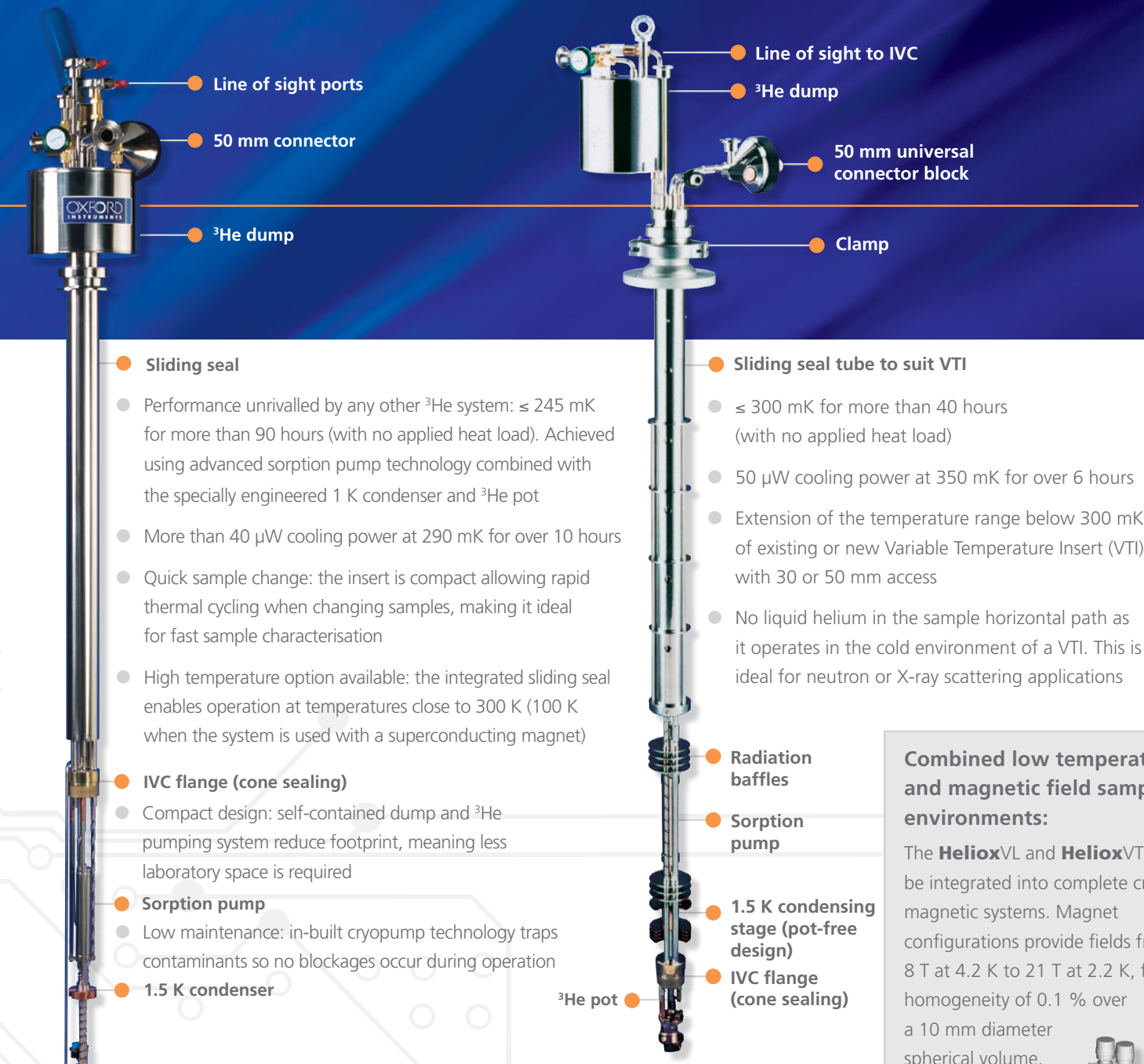
Experimental access

Inserts are provided with spare ports to give additional access, featuring either line of sight access to ^{3}He pot, IVC, or spare ports for additional wiring to the insert / experimental probes.

Inserts can be utilised with a range of wiring options and sample positioning devices. Optical access is also available, plus interfaces with SPM heads and pressure cells.

Magnetic field configurations

For magnetic fields over 6 T: the **Heliox**VL is combined with magnetic environments within the **Integra**™ product range. This range uniquely integrates environments together under software control and provides magnetic fields up to 21 T. For magnetic fields below 6 T and when the cryostat is used in a transport dewar, a small magnet is mounted onto the IVC tube and provides magnet operation in persistent mode (not suitable for sustained field ramping).



- Performance unrivalled by any other ³He system: ≤ 245 mK for more than 90 hours (with no applied heat load). Achieved using advanced sorption pump technology combined with the specially engineered 1 K condenser and ³He pot
- More than 40 µW cooling power at 290 mK for over 10 hours
- Quick sample change: the insert is compact allowing rapid thermal cycling when changing samples, making it ideal for fast sample characterisation
- High temperature option available: the integrated sliding seal enables operation at temperatures close to 300 K (100 K when the system is used with a superconducting magnet)

- Compact design: self-contained dump and ³He pumping system reduce footprint, meaning less laboratory space is required
- Low maintenance: in-built cryopump technology traps contaminants so no blockages occur during operation

- Low intrinsic vibration: The combination of the cryogenic pump and the 1 K coil type of condenser provides an excellent environment for vibration-sensitive techniques
- Compatible with liquid helium storage vessels or dewars with neck diameter of ≥ 52 mm
- Greased cone sealing for the IVC and the integrated ³He dump mean the system is easy to use

- ≤ 300 mK for more than 40 hours (with no applied heat load)
- 50 µW cooling power at 350 mK for over 6 hours
- Extension of the temperature range below 300 mK of existing or new Variable Temperature Insert (VTI) with 30 or 50 mm access
- No liquid helium in the sample horizontal path as it operates in the cold environment of a VTI. This is ideal for neutron or X-ray scattering applications

Combined low temperature and magnetic field sample environments:

The **Helox**VL and **Helox**VT can be integrated into complete cryo-magnetic systems. Magnet configurations provide fields from 8 T at 4.2 K to 21 T at 2.2 K, field homogeneity of 0.1 % over a 10 mm diameter spherical volume.

Solution to helium rising costs:

The **Helox**VL, and **Helox**VT are compatible with the **Integra**AC, recondensing liquid helium cryostat. This product has been developed to significantly reduce the consumption of liquid helium by recondensing helium gas evaporated within the system, which would otherwise be vented from the cryostat. This decreases the frequency of helium refills. Cryogenic systems can be kept cold continuously, even when in stand-by mode, leading to greater freedom to schedule experimental time.

HELIOX

OiService®

A global reach

By choosing Oxford Instruments as the supplier of your next ^{3}He system, not only are you getting a reliable product but also access to a service support team.

This includes:

- Our team of expert service engineers have many years experience based on the successful installation of hundreds of magnet and low temperature systems
- Local service support by engineers in UK, Germany, USA, China, Japan or India
- Bespoke Cryospares service
  (Visit our eShop: www.cryospares.com)

Service*Wise* extended warranty

Oxford Instruments offers a standard 12-month warranty on all products. You can also upgrade this cover and purchase extended warranty. Warranty covers parts, labour, return from the factory and third-party items and on-site service if required. We can also loan control electronics and pumps, subject to availability.

Visit **www.oxford-instruments.com** for more information or email: **nanoscience@oxinst.com**

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