

Optistat™ PT

Modular pulse tube based Cryofree® cryostat family

The **Optistat**PT family includes a range of modular cryogen-free cryostats which can be configured to suit various applications. The systems can achieve temperatures as low as 4.2 K as standard and can also be fitted with a dilution refrigerator (TL type only) should lower temperatures be required. A range of magnet options are also available. As these cryostats do not use any liquid helium, they can be easily integrated into a wide range of measurement systems and require minimum maintenance.

Features and benefits:

- 4.2 K without the need for liquid cryogen
- Fully automated operation
- Low running and servicing costs
- Low vibration: no moving parts in the cold head means ultra-low vibration characteristics
- Large sample space enabling the study of complicated set-ups.

The European Space Agency in Darmstadt purchased a vacuum loading cryostat (**Optistat**PT-VL type). They chose this cryostat because they needed a sample space large enough to accommodate their sapphire oscillator. They also required low vibration levels as this oscillator has ultra high short-term stability.

The cryostat achieved the following specifications on test:

Base temperature at the 4 K plate ≤ 2.8 K
Stability at the 4 K plate = ± 0.01 K
Cool down time to 4 K ~ approximately 6 hours
Warm up time to RT ~ approximately 4 hours
Cooling power (2nd stage) at 4.2 K ~ approximately 0.3 W

Mechanical vibration levels:

Less than 1 μm (rms) above 0.1 Hz up to the limits of the measurement (10 kHz)



OptistatPT-TL

Modular options:

- Choice of sample environments: vacuum or exchange gas (top-loading)
- Choice of magnetic environment options: 3 T, 5 T and 8 T
- A wide range of experimental wiring options
- Various inserts: 4 K sample stick and $^3\text{He}/^4\text{He}$ dilution refrigerators (TL only)
- A wide range of window materials (VS and VL only)



OptistatPT-VL



The Business of Science®

UK

Tubney Woods, Abingdon
Oxfordshire OX13 5QX
Tel: +44 1865 393 200
Fax: +44 1865 393 333

China

Rm. 14-F, No.1 Plaza
No. 800 Nanjing East Road
Shanghai 200001
Tel: +86 21 63608530/1/2/3
Fax: +86 21 63608535

Germany

Otto-von Guericke Ring 10
65205 Wiesbaden
Tel: +49 6122 937 171
Fax: +49 6122 937 175

Italy

Pieve Emanuele, Milan
Tel: +39 335 7378794

Japan

Haseman Building
2-11-6 Tomioka, Koto-ku
Tokyo 135-0047
Tel: +81 03 5245 3261
Fax: +81 03 5245 4472

Spain

Majadahonda, Madrid
Tel: +34 91 602 7337
Fax: +34 91 602 7337

USA

300 Baker Ave., Suite 150,
Concord, MA 01742, USA
Tel: +1 978 369 9933
Fax: +1 978 369 8287

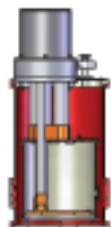
Email:

nanoscience@oxinst.com

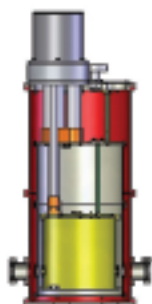
Visit our website:

www.oxford-instruments.com

Optistat^{PT} cryostat configurations



Optistat^{PT}-VS



Optistat^{PT}-VL



Optistat^{PT}-TL

Cryostat type	VS	VL	TL
Temperature range	4.2 K only	4.2 K only	4.2 K to 400 K see note 1
Sample loading	Bottom loading	Bottom loading	Top loading
Sample environment	Vacuum	Vacuum	Exchange gas
Sample space size	185 mm dia * 195 mm long	200 mm dia * 300 mm long	49 mm dia * 200 mm long
PTR model	VT4-200	VT4-500	VT4-500
Compressor consumption (water cooled)	2 kW	6 kW	6 kW
Optical access	4 off windows	4 off windows	Plain tail
Temperature sensor	Cernox	Cernox	Cernox
Magnet options:			
3T - 57 mm bore	NA	Optional	Optional see note 2
5T - 57 mm bore	NA	Optional	Optional see note 2
8T - 57 mm bore	NA	Optional	Optional see note 2
Electronic options:			
PC for automated control	Optional	Optional	Optional
Temperature controller see note 3	Optional	Optional	Optional
19" rack for electronics	Optional	Optional	Optional
Other options:			
Cart for moving cryostat	Optional	Optional	Optional
Standard sample rod	NA	NA	Optional
Simple height and rotate sample rod	NA	NA	Optional
Precise height and rotate sample rod	NA	NA	Optional
Window sets see note 4	Optional	Optional	NA

Note:

- Higher temperatures can be achieved by heating sample rod - this requires the customer to order a sample rod with a sensor and heater
- Some magnet options can limit the upper temperature range
- Standard temperature controller option is a Lakeshore 340
- Radial optical access ports are fitted with blanks as standard. A full range of window materials are offered as options

This publication is the copyright of Oxford Instruments plc and provides outline information only which (unless agreed by the company in writing) may not be used, applied or reproduced for any purpose or form part of any order, or contact or be regarded as a representation relating to the products or services concerned. Oxford Instruments' policy is one of continued improvement. The company reserves the right to alter, without notice, the specification, design or conditions of supply of any product or service. Oxford Instruments acknowledges all trade marks and registrations.

