

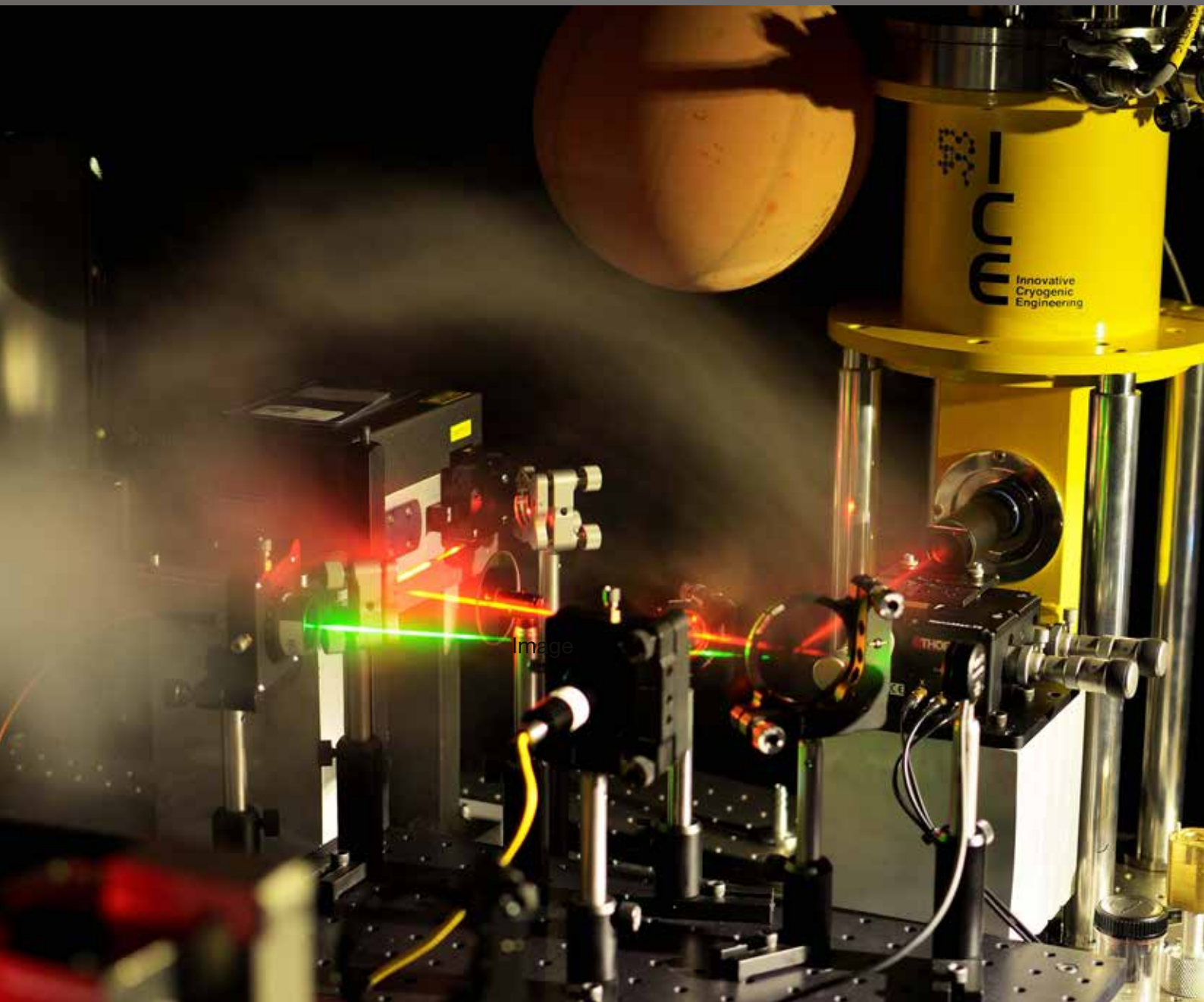


ICE

Innovative Cryogenic Engineering

DRY ICE⁴ & 10K CRYOSTATS

Fast Cooling – Large Sample Space – Optical Access – Customisable



Tailored to meet your exact requirements

DRYICE4 & 10K



ICEoxford offers a versatile range of 4-800K DRY cryostats for a wide variety of applications. A DRY cryostat from ICEoxford offers high performance, reliability and low cost making them a perfect addition to any lab. All ICEoxford DRY systems are 100% cryogen free.

Cryogen Free systems offer the ability to cool to sub 4K temperatures without the inconvenience and expense associated with a liquid Helium system. This performance and price advantage combined with long service intervals and short cool-down times make them an ideal solution for research and industrial environments. Especially those requiring high performance, economic, fast and dependable cryostats.

Some common applications for these systems in spectroscopy are; Mossbauer, Raman, UV/VIS, FTIR, Terahertz, Fluorescence and Photoluminescence. They are also used in various new Quantum research fields.



DRYICE^{4K-VL} VACUUM LOADING CRYOSTAT

The ICEoxford 4K vacuum loading cryostat is a highly adaptable system designed for ease of use. The system is cooled using an inverted GM cold head. Sample changes are quick and easy via the removable top can and radiation shield. The sample is contained within a vacuum environment cooled by a flexible mechanical link to the cold head. To minimise vibration transferred from the cold head to the sample the cold head held in position with edge welded bellows and a 3d printed vibration isolation frame.

PERFORMANCE

Temperature range	<4-325K (500K option)
Cooling power @ 4.2K	0.1-1.0 Watts
Temperature stability	±10mK
Sample environment	Vacuum
Sample space	dia. 60mm L. 100mm
Vibration at sample	±5 microns



DESIGNED TO SUIT A NUMBER OF APPLICATIONS:

- Low vibration – ±30nm
- High temperature – up to 800K
- Quick sample change - < 2 hours from base to 300K back to base
- Optical access – compatible with most spectroscopy experiments including Mossbauer
- Cooling power – wide range of GM and pulse tube coolers available
- Large sample space – completely customisable
- Experimental wiring - custom wiring and sample holders available
- Large range of sample rotators
- Complete custom designed service available
- Fast delivery times



DRYICE^{8K-ULV} ULTRA LOW VIBRATION CRYOSTAT

The DRYICE^{8K-ULV} Low Vibration Cryostat is design specifically for spectroscopy application where low vibration levels are paramount. ICEoxford is able to achieve vibration levels as low as $\pm 30\text{nm}$ peak to peak broad spectrum using a GM cooler. This is accomplished using propriety technology such as; a thermal sock, soft bellows and pneumatic vibration isolation technology. Combining these technologies allows the cold head to completely isolated in the system virtually eliminating the vibration which are emitted by it. Vibration levels are further reduced by mounting the cryostat to an optical table and supporting the cold head separately from a rigid structure such as an I-beam or wall.

PERFORMANCE

Temperature range	8-325K (800K option)
Cooling power @ 10K	2.5 Watts
Temperature stability	$\pm 10\text{mK}$
Sample environment	Vacuum
Sample space	dia. 30mm L. 30mm (custom tail sets available)
Vibration at sample	$< \pm 30\text{nm}$
Cool down time to 4.2K	< 3 hours
Compressor	Air or water cooled options available(custom tail sets available)
Optical access	Up to five windows in any material available



DRYICE^{4K-LV} LOW VIBRATION CRYOSTAT

Also available as a 4K system. Decreasing the base temperature from 8K to $< 4\text{K}$. Using a different cold head, harder bellows and reconfigured vibration isolation supports the 4K system offers vibration levels as low as $\pm 250\text{nm}$. Cooling powers between 0.1 and 1.0 Watts are available at 4.2K.

DRYICE^{4K-TL} TOP LOADING PROBE CRYOSTAT

The 4K top loading probe cryostat is ideal for applications where quick sample changes are vital. Unique to this system a probe is loaded into and cooled by a column of exchange gas. To change the sample the probe is simply removed, sample changed then reinserted into the exchange gas. Sample changeover can be completed in as little as 2 hours (4K to 300K back to 4K). This cryostat has been used for a variety of applications including; pre-screening samples for dilution fridges, ESR, Mossbauer and general electrical properties measurements.

PERFORMANCE

Temperature range	< 4 -325K (800K option)n
cold head cooling power @ 4.2K	0.1-1.0 Watts
Temperature stability	$\pm 10\text{mK}$
Sample environment	Exchange gas
Sample space	dia. 76mm L. 100mm (custom lengths available)
Vibration at sample	± 10 microns
Cool down time to 4.2K	< 1.5 hours
Compressor	Air or water cooled options available

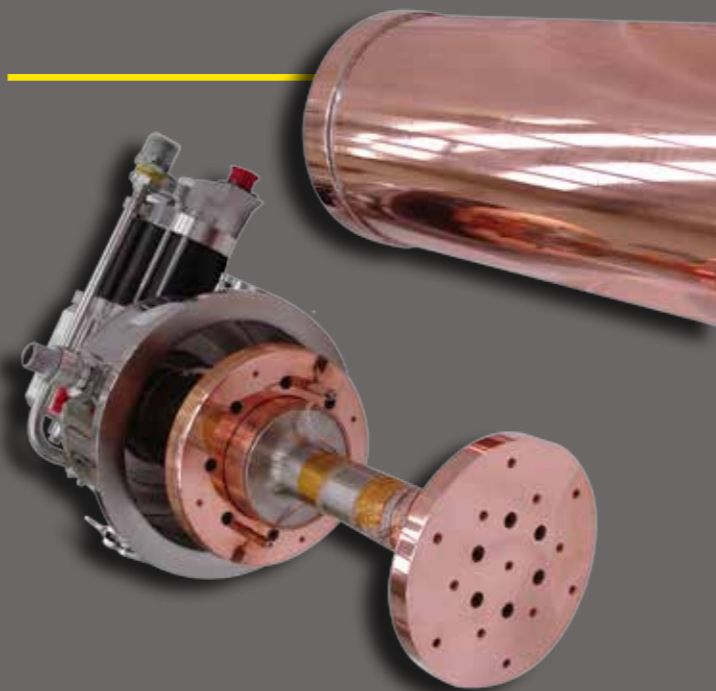


DRYICE^B BASIC CRYOSTAT

Reliable and robust basic cryostats ideal for a wide range of application. Using simple and well proven technology ICEoxford is able to offer a highly adaptable cost effect cryostat that still retains high quality and performance levels.

BASIC CRYOSTATS FEATURES:

- 4K and 10K options available
- Range of cooling powers to suit your applications
- Vast choice of optical and non-optical tail sets, customised on request
- Cost effective solution to your cryogenic needs
- ±10 micron vibration levels
- Up to 500K available
- Wide verity of sample space and wiring options.



PERFORMANCE

Temperature range	<4-325K (500K option)
Cooling power	0.1-1.0 Watts
Temperature stability	±20mK
Sample environment	vacuum
Sample space	dia. up to 100mm L. 100mm (custom sizes available)
Vibration at sample	±10 microns
Cool down time to 4.2K	<4 hours
Compressor	Air or water cooled options available
Optical access	Up to five windows in any material available



DRYICE^{4K-MOSS} MOSSBAUER CRYOSTATS

Two cryostats are available both specifically designed for Mossbauer spectroscopy. A top loading probe design based on the DRYICE^{4K-PL} cryostat with Mylar windows and a vibration isolation support frame allow vibration levels as low as ±100nm are achieved. This system also benefits from quick sample changes over which can be completed in as little as 2 hours (4K to 300K back to 4K).

The vacuum sample space Mossbauer cryostat was developed for special application where delicate samples which are susceptible to contamination are used and transmission through exchange gas is not acceptable.

PERFORMANCE

	VACUUM	EXCHANGE GAS
Temperature range	<4-325K 500K option	<4-325K 800K option
Cold head cooling power @ 4.2K	0.1-1.0 Watts	0.1-1.0 Watts
Temperature stability	±10mK	±10mK
Sample environment	Vacuum	Exchange gas
Sample space	dia. up to 76mm L. 100mm (custom sizes available)	dia. up to 100mm L. 100mm (custom sizes available)
Vibration at sample	± 250nm	±100nm
Cool down time to 4.2K	<2 hours	<4 hours
Compressor	Air or water cooled options available	Air or water cooled options available
Optical access	Two Aluminised Mylar windows (can be customised)	Two Aluminised Mylar windows (can be customised)



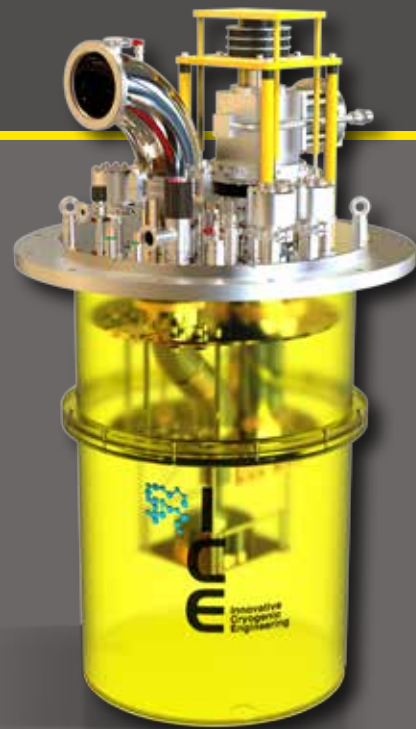


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HIGH DEGREE OF ENGINEERING DESIGN

ICEoxford prides itself in a high level of engineering design and manufacturing. We work closely with the customer in order to fully understand their requirements and will tailor the design to meet the customer's exact specifications.



At ICEoxford we specialise in custom solutions. Please contact us to request a bespoke system quotation for your individual experimental requirements.

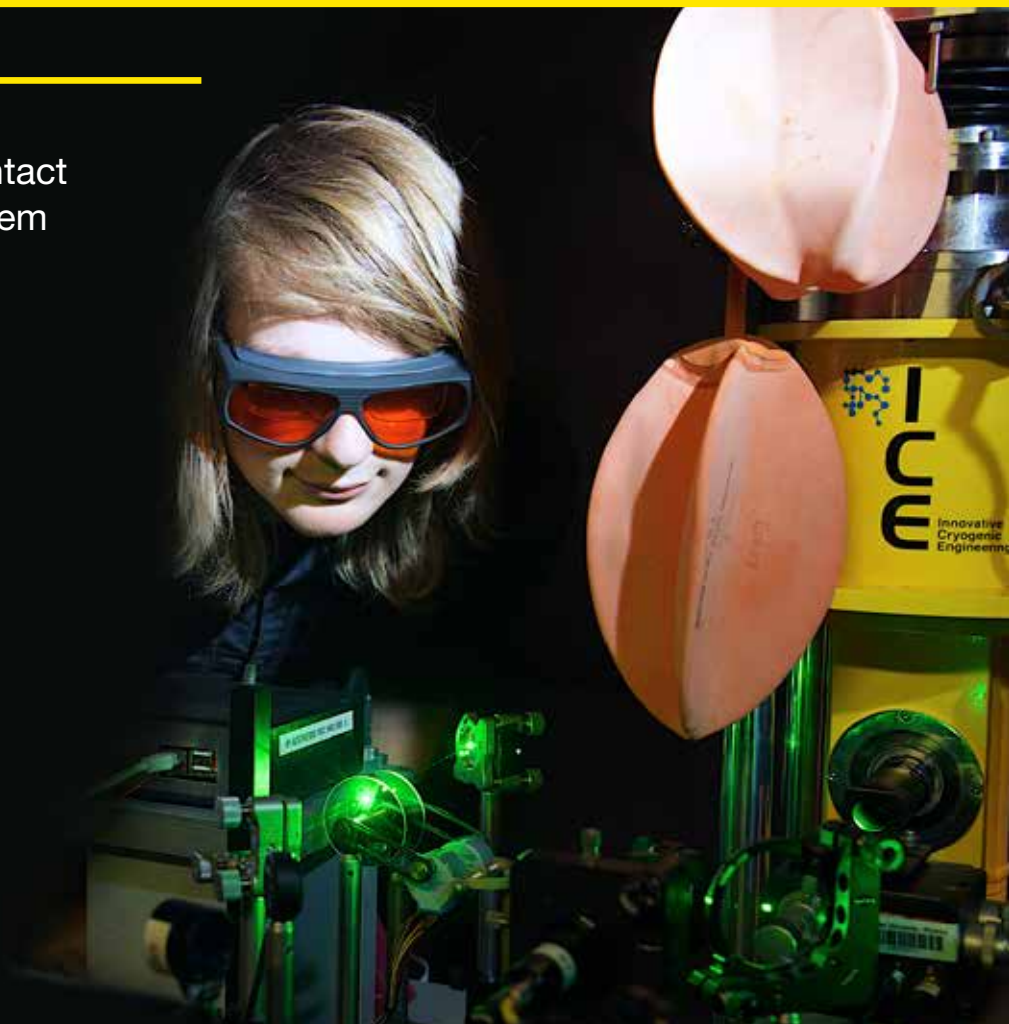


Image courtesy of Dr Robert Young,
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