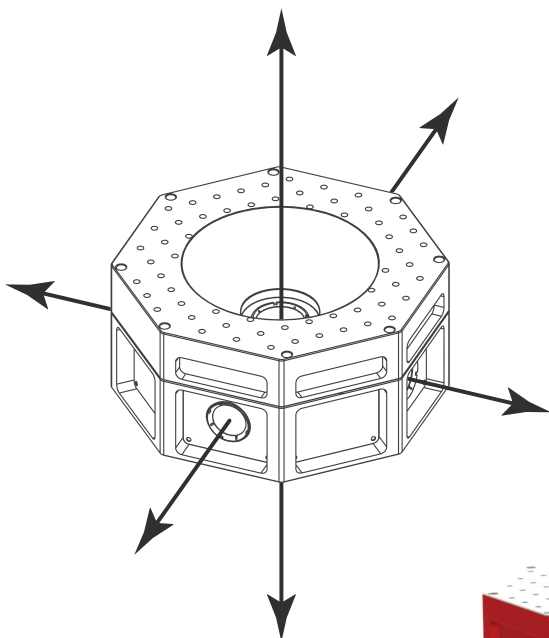


Product Announcement

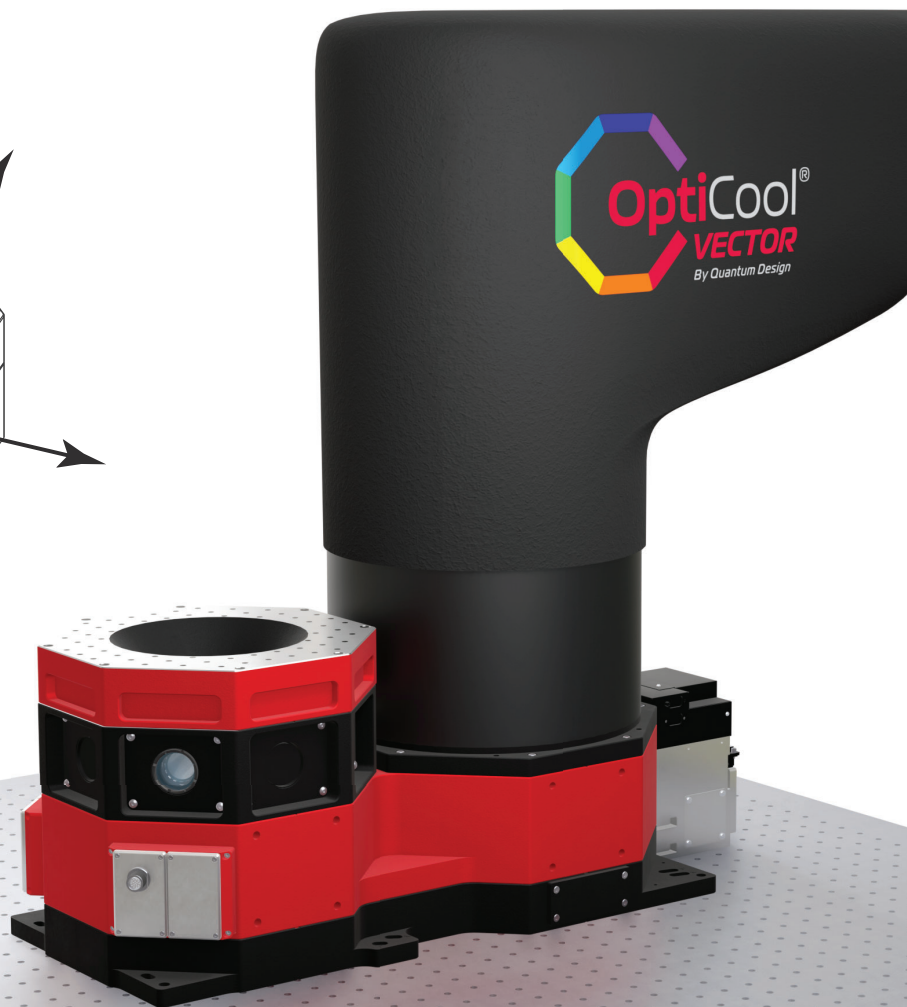
The **OptiCool® Vector** is a magneto-optical cryostat with a 4-1-1 vector magnet which is based on the cutting edge OptiCool design. The cryogen-free OptiCool platform leverages Quantum Design's 40+ years' experience in engineering and manufacturing automated temperature and magnetic field control systems. With fully automated cooldown and seamless temperature control through the range of 350 K to 1.7 K, the OptiCool also has the low vibration and stability that is critical to optical measurements. OptiCool sample pod technology allows researchers to create and build customized set-ups for optical measurements.

The OptiCool Vector magnet provides a magnetic field up to ± 4 T perpendicular to the optical table and ± 1 T in the plane parallel to the optical table. The four side windows in the X and Y axes of the magnet allow for transmission and reflection experiments in-plane parallel to the table. The top and optional bottom window in the Z direction allow for reflection or transmission experiments perpendicular to the optical table. The magnet power supplies in the OptiCool Vector allow users to precisely set the magnetic field direction relative to their sample and optical systems.



The vector magnet of the OptiCool Vector makes it the perfect platform to study:

- **Color Centers**
(e.g., Diamond Nitrogen Vacancies)
- **2D Materials**
(e.g., Transition Metal Dichalcogenides)
- **Magneto-Excitons**
- **Anisotropic Magnetic Single Crystals**
- **Magnetic Thin Films**
- **Magneto Optic Kerr Effect**
- **Spin-Orbit Coupling**



OptiCool® Vector Specifications*

Temperature Control

Temperature Range: 1.7 K to 350 K

Magnetic Field Control

Z Maximum Field: $\pm 40,000$ Oe (± 4 T)
 X and Y Maximum Field: $\pm 10,000$ Oe (± 1 T)
 Field Uniformity, Z Axis: $\pm 0.3\%$ over a 3 cm diameter spherical volume
 Field Uniformity, X and Y Axes: $\pm 1.0\%$ over a 1 cm diameter spherical volume

Optical Access

1 Top and 1 Optional Bottom Window: 50 mm diameter, 41.5 mm clear bore (user-replaceable)
 4 Side Windows: 40 mm diameter, 24.5 mm clear bore (user-replaceable)

Vibrational Stability

Horizontal: < 10 nm peak-to-peak
 Vertical: < 4 nm peak-to-peak

Sample Space

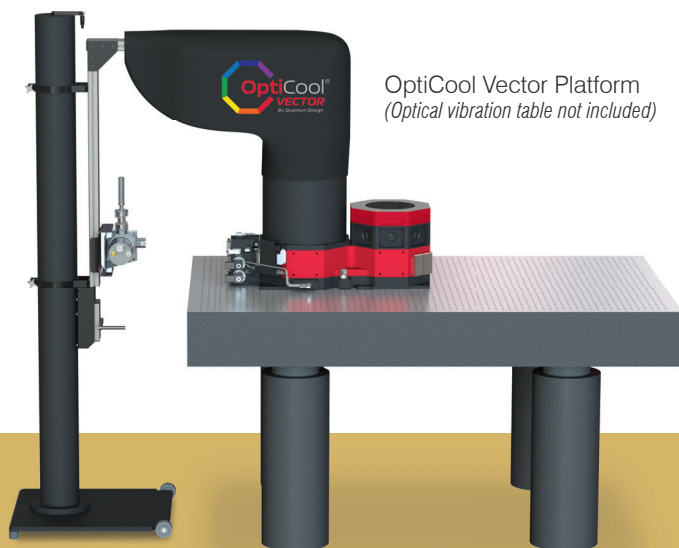
Maximum Sample Volume: 89 mm diameter by 84 mm tall
 Sample Environment: Sample in cryostat vacuum space

Dimensions

Optical Table: Cryostat footprint: 1 m x 0.5 m (minimum)
 Cryostat height: 1 m (minimum)
 Floor Space: Tower footprint: 0.75 m x 0.75 m
 Tower height: 2 m (minimum)
 Cabinet footprint**: 1 m x 1 m
 Cabinet height** (w/ magnet power supplies): 1 m

* Specifications subject to change without notice. (April 2025)

** Cabinet not shown.



OptiCool Vector Platform
 (Optical vibration table not included)



Quantum Design

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