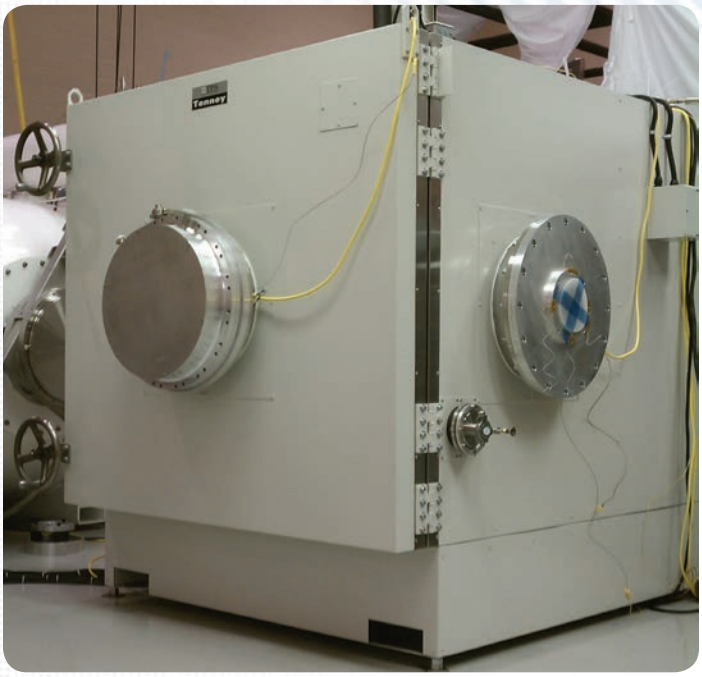
SDL / MDA

ELECTRO-OPTICAL

ALTITUDE TEST CHAMBER

The Space Dynamics Laboratory (SDL) and the Missile Defense Agency (MDA) have a state-of-the-art altitude test chamber in SDL's optical calibration and test facility that enables full characterization of airborne optical sensors. The chamber provides a high-fidelity, realistic test environment for the sensor under test. It is designed to match the environment for the sensor in terms of temperature and pressure characteristics. This chamber can ramp rates quickly when switching between test temperatures/pressures. This saves critical test time when compared to other options. A sophisticated pressure monitoring system is installed to protect the chamber and attached optical components. This chamber is available to U. S. Government users on a no-cost, non-interference basis.

SDL currently has multiple large aperture ZnS Cleartran (infrared), BK7 (visible), and fused silica (visible) windows that can be interfaced to this chamber's exit ports.



Electro-optical Altitude Test Chamber

SPECIFICATIONS

INTERIOR WORKING VOLUME	64 ft^3
INTERIOR DIMENSIONS	4′ x 4′ x 4′
ALTITUDE SIMULATION	Sea level – 100,000 ft
OPERATIONAL TEMPERATURES	-60° C to 125° C
OPERATIONAL PRESSURES	Ambient to ≤10 Torr
TEMPERATURE RAMP RATE	~3° C/min
OPTICAL PORTS	3 x 20″ round
SENSOR POSITIONING SYSTEM (SEE BACK FOR MORE DETAILS)	2-axis linear (vertical & front to back)
REFRIGERATION SYSTEM	Dual compressor with liquid nitrogen boost

Compressors are remotely located to reduce vibration coupling

Space Dynamics LABORATORY
Utah State University Research Foundation

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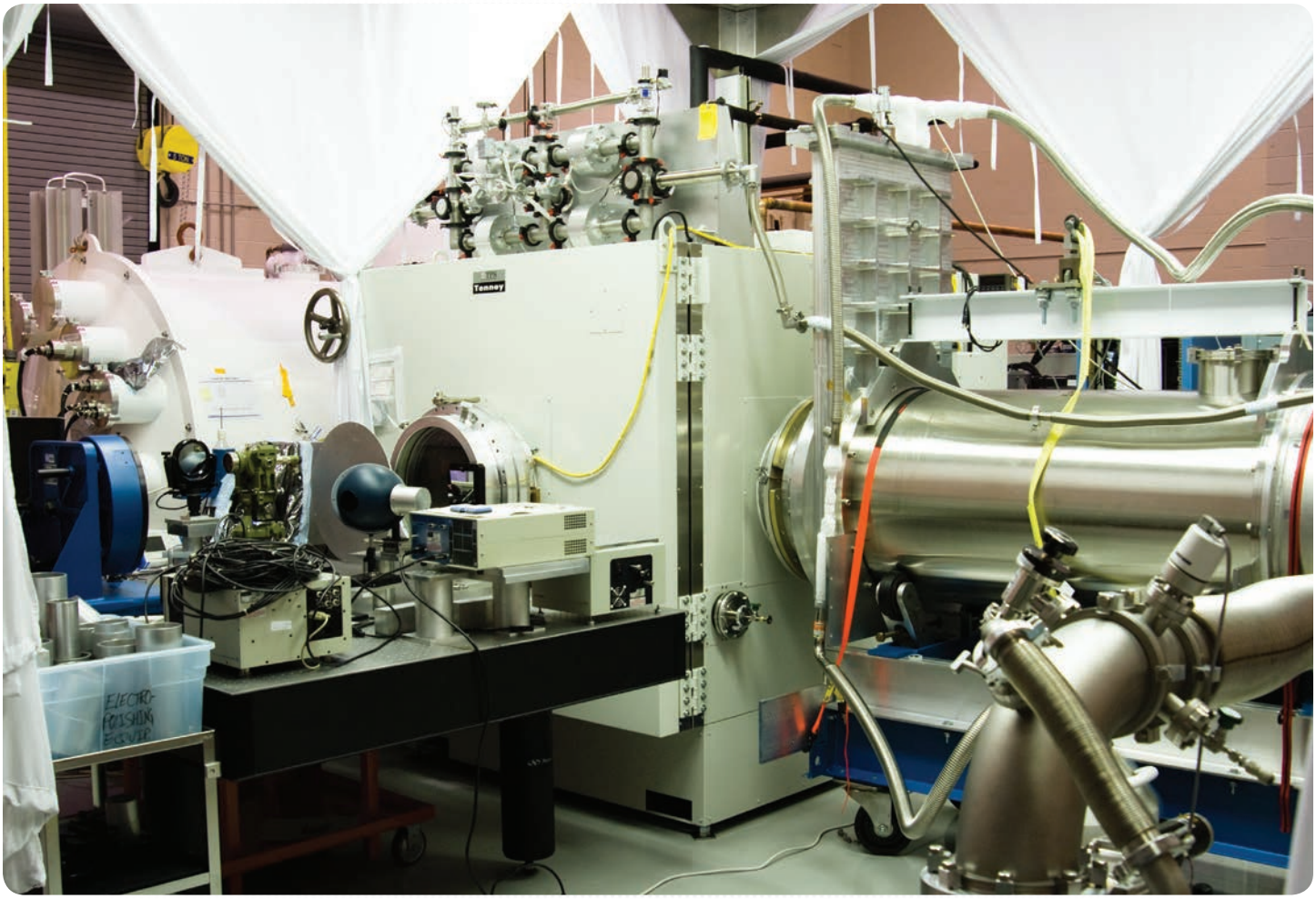
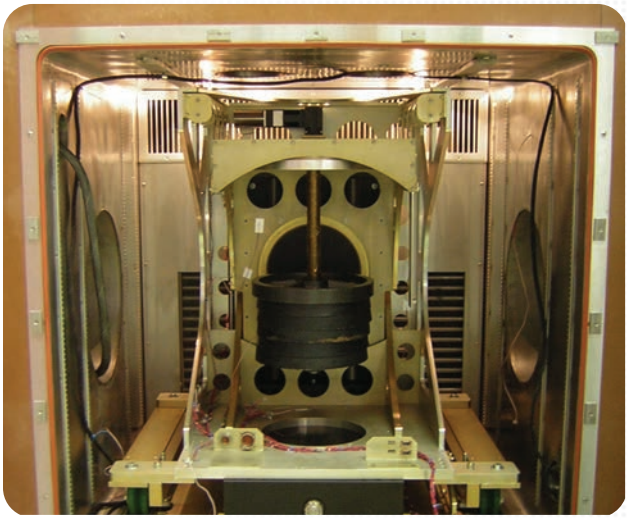


The Electro-optical Altitude Test Chamber interfaced with the MIC5 (left), HAES15 (right), and visible collimator/monochromator (front)



Sensor positioning system inside the Electro-optical Altitude Test Chamber

SENSOR POSITIONING SYSTEM SPECIFICATIONS

STROKE Y (FRONT TO BACK)	3.63" back, 5.85" forward
STROKE Z (UP & DOWN)	3.25" down, 3.82" up
TRAVERSE RATE	Average move in 30 sec
TEMPERATURE RANGE	+50˚ C to -55˚ C
PRESSURE RANGE	0.1 psia to 14.7 psia (5.2 Torr – ambient)
SENSOR WEIGHT CAPACITY	338 lbs

Supports sensors with built-in rotation & elevation capabilities.

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