

High Capacity Thruster Pendulum

During our Phase I and II research programs for MDA during which the microthruster was built, we invented, calibrated and used a torsion-type pendulum capable of carrying 15kg and measuring 100 micronewton thrust.

The gage is based on a steel wire (rather than glass) torsion fiber. The only connection to the external world is through this wire. Electrical power is provided by the lithium cells and switched on and off by the IR Comm and associated controller. These objects provide balance to the engine being tested. The IR Comm unit responds to an external signal sent through the glass vacuum chamber wall.

With the interferometric readout option, sensitivity is 25 nN and range 100 μ N. Response: 1.3 mN/radian. Calibration accuracy: +/- 4%.

Micronewton Torsion Pendulum

