RAPTOR SCIENTIFIC®

POI3500
Spin Balance Machine

Global Provider of Test & Measurement Solutions

Unsurpassed Accuracy

Raptor Scientific's POI series Spin Balance Machines are able to measure a number of mass properties on one machine. Our unique spherical air bearing design allows measurement of dynamic unbalance, product of inertia, center or gravity, and moment of inertia with a single setup on a single machine.

By eliminating the need for multiple machines, the time required to make measurements and risks associated with handling payloads is reduced. Alignment errors that occur during setup on different machines are eliminated.

Our POI Series are the most accurate instruments in the world for mass properties measurement. They are regularly recommended for determining mass properties of rockets, satellites, and ballistic objects.

Spin Balance Machines Measure All Mass Properties

Key Features

- Measures dynamic unbalance & MOI on a single machine.
- Only instrument with true static CG measurement capability, eliminating errors due to air turbulence on irregularly shaped objects such as spacecraft.
- Slow spin speed minimizes centrifugal forces on payload.
- Two plane concept allows simultaneous measurement of CG offset and product of inertia.
- Largest payload range available - The same instrument can measure payloads weighing only 2% of machine capacity
- Use of gas bearing - Cleanroom compatible, no contamination risk, no high pressure, no danger of explosion.
- Enormous stiffness to overturning moment - remains stable when tall objects with high CG are measured.
- Fully automated operation; metric and imperial units.
- Results are reported directly in the payload coordinate system.
- Optional weight platform and CMM allow direct acquisition of test part weight and coordinate system into the POI system.

General Specifications of the POI3500

- Measurements in 1 setup -2 CG coordinates, 1 MOI value & 2 plane POI
- Maximum Payload Weight - 3,500 lb (1,600 kg)
- Spin speed range - 20 rpm to 300 rpm
- Unbalance Reduction Ratio - 95%
- Minimum Achievable Readout
  2 lb-in^2(585.3 kg-mm^2) @ 30 rpm
  .5 lb-in^2(146.3 kg-mm^2) @ 50 rpm
  .15 lb-in^2(43.9 kg-mm^2) @ 100 rpm
  .06 lb-in^2 (17.6 kg-mm^2) @ 200 rpm
- Full-Scale Dynamic Unbalance
  253,000 lb-in^2 (74.1 kg-m^2) @30 rpm
  91,000 lb-in^2(26.7 kg- m^2) @ 50 rpm
  22,8000 lb-in^2(6.7 kg-m^2) @ 100 rpm
  5,700 lb-in^2(1.7 kg-m^2) @ 200 rpm
- MOI Accuracy - 0.1% of reading + 2 lb-in^2 (6 kg-cm^2)
- Electrical Power Req. - 115 VAC 1-phase, 220 VAC 3- phase, 60 Hz
- Pneumatic Req. - Clean source of dry air or nitrogen, 80 psi, 2 CFM
- Calibration Hardware - Traceable to NIST

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