RAPTOR SCIENTIFIC

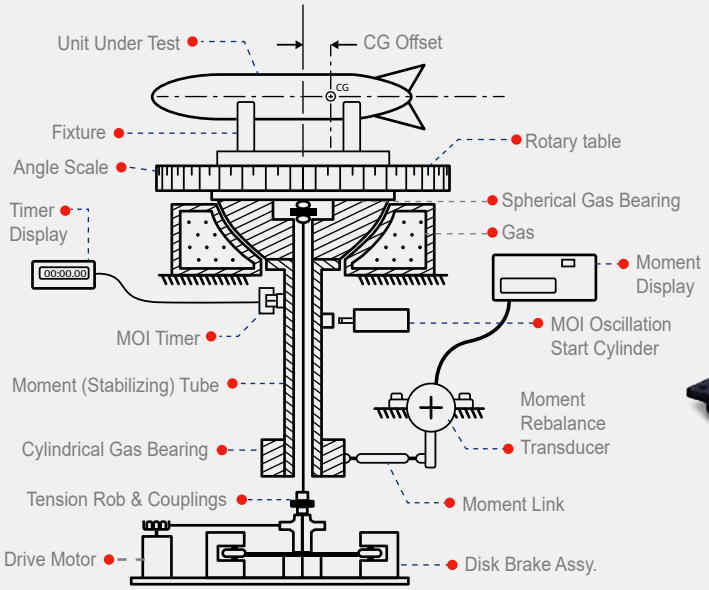
KSR 2200

Global Provider of Test & Measurement Solutions

Center of Gravity and Moment of Inertia Instruments

KSR2200 instruments are the most accurate instruments in the world for center of gravity and moment of inertia measurement.

They are particularly recommended for determining mass properties of rockets, satellite and ballistic objects.



Measurement Concept

The greatly simplified drawing above illustrates the basic theory of operation. A spherical bearing supports a rotary table and acts as a pivot axis for measuring unbalance moments due to the displacement of the test part CG relative to the central axis of the bearing. Moment of inertia is determined by clamping the lower end of the torsion rod attached to the gas bearing, thus converting the instrument to an inverted torsion pendulum.

Key Features

- **High Accuracy** – Payload capacity CG measurement to 25 microns and MOI measurement to 0.1%
- **Largest Payload Range Available** – the same instrument can measure payloads weighing only 4% of the machine capacity
- **Fully Automated Operation** – select CG or MOI on the computer screen and the entire measurement sequence runs automatically
- **Use of gas bearing** – fully compatible with clean rooms, 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 programmable for metric and imperial units
- **User defined coordinate system** – CG and MOI are reported directly in the payload coordinate system
- **Calibration hardware traceable to NIST** is provided with all our instruments. Unbalance moment is measured directly. CG changes can be observed immediately
- **Optional weight platform and CMM device** allow direct acquisition of test part weight and coordinate system into the KSR system.

Payload Capacity	1,000 kg, 2,200 lb
Recommended Payload Range	45 - 1,000 kg, 100 - 2,200 lb
Full Scale Moment	2,900 kg-cm, 2,500 lb-in
Maximum CG Height	640 kg @ 2,000 mm, 1,400 lb @ 80 in
Mounting Table Diameter	406 mm, 16 in
CG Measurement Accuracy	0.1% + 0.1 kg-mm / 0.03 lb-in
MOI Measurement Accuracy	0.1% + 0.7 kg-cm² / 2 lb-in²
Electrical Power Requirements	115 VAC, 60 Hz or 220 VAC, 50 Hz, single phase
Pneumatic Requirements	Clean source of dry air or nitrogen, 7 bars, 60 L/min, 100 psi 2CFM
Facility Rquirements	Concrete floor, 15 cm/ 6 in thick

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