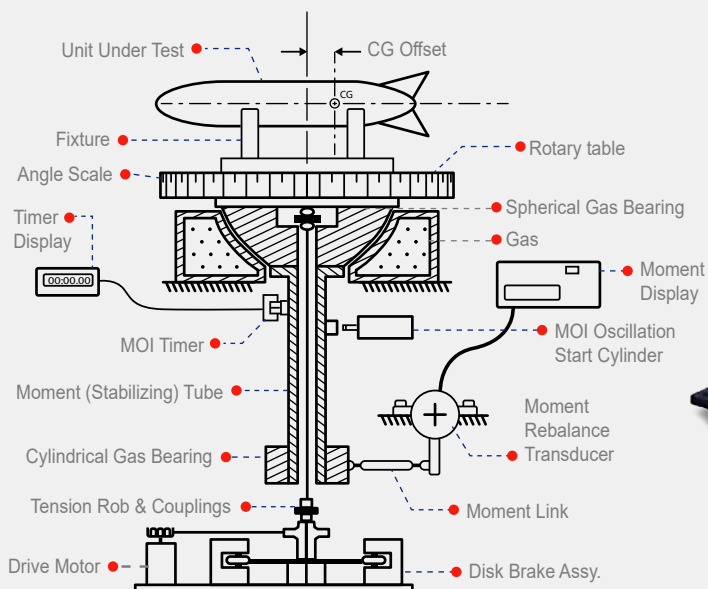


## Center of Gravity and Moment of Inertia Instruments

KSR20000 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 large space flight vehicles and satellites.



# KSR 20000



Global Provider of Test & Measurement Solutions



## 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.

<b>Payload Capacity</b>	9,700 kg, 20,000 lb
<b>Recommended Payload Range</b>	450 - 9,070 kg, 1,000 - 2,000lb
<b>Full Scale Moment</b>	41,500 kg-cm, 36,000 lb-in
<b>Maximum CG Height</b>	5,900 kg @ 3,400 mm, 13,000 lb @ 135 in
<b>Mounting Table Diameter</b>	1,524 mm, 60 in
<b>CG Measurement Accuracy</b>	0.1% + 92 kg-mm / 8 lb-in
<b>MOI Measurement Accuracy</b>	0.1% + 200 kg-cm <sup>2</sup> / 70 lb-in <sup>2</sup>
<b>Electrical Power Requirements</b>	115 VAC, 60Hz or 220 VAC, 50 Hz, single phase
<b>Pneumatic Requirements</b>	Clean source of dry air or nitrogen, 7 bars, 60 L/min
<b>Facility Requirements</b>	Concrete floor, 15 cm thick