Moment of Inertia Measurement Instruments

Description

Raptor Scientific is the world leader in moment of inertia (MOI) measurement. We manufacture more than 50 different instruments that measure moment of inertia, of which more than 15 are dedicated to measuring moment of inertia only.

Our smallest instrument measures tiny mechanisms weighing less than one gram. Our largest instrument can measure payloads weighing over 10,000 kg.

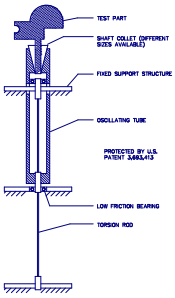
Basic Concept

Raptor Scientific is the originator of the torsion flexure measurement concept used in most MOI instruments.

Our instruments operate on the principle of the inverted torsion pendulum. Instead of the traditional method of hanging a payload from a torsion rod or wire, the test object rests on a table attached to precision low friction bearings which constrain the motion of this torsion member to pure rotation. A sensing device produces timing pulses which start and stop a digital period counter to determine the period of the oscillating system.

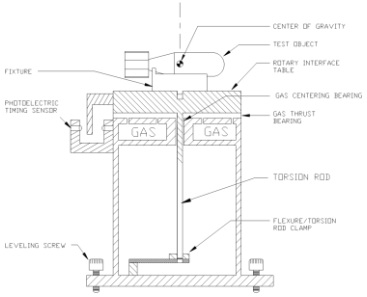
Types of instruments

XR Series – These instruments measure MOI of payloads weighing up to 115 kg. They have been designed for general use where a reliable, well-built instrument with high accuracy (0.25%) is needed.



XKR Series – These instruments measure MOI of small payloads (from 0.1 kg up to 2.3 kg) with high to extremely high accuracy (0.1% accuracy is available).

GB Series – These instruments measure MOI of heavy test parts (from 68 kg up to 6,000 kg) and are often used for critical tests on space and military applications.



KSR Series – These instruments measure moment of inertia and center of gravity with high accuracy.

MP Series – These instruments measure moment of inertia, center and gravity, and weight of heavy test objects.

POI Series – These instruments are complete mass properties instruments. They measure center of gravity, moment of inertia, product of inertia, and dynamic unbalance.

General Specifications (see specific product sheet for a particular model)

	XR Series	XKR Series	GB Series	KSR Series	MP Series	POI Series
Max Payload Capacity	115 kg	2.3 kg	6,000 kg	9,070 kg	4,500 kg	10,500 kg
MOI accuracy	0.25%	0.1%	0.1%	0.1%	0.25%	0.1%
Values measured	MOI only	MOI only	MOI only	MOI and CG	MOI, CG, and Weight	All mass properties

Note: Calibration hardware is provided with all our instruments, traceable to NIST.

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