

Moment Weight Scales

Single Axis and Tri-Axis Scales

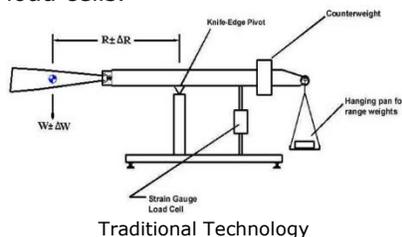


Description

Raptor Scientific manufactures the most accurate moment weight scales in the world.

Basic Concept

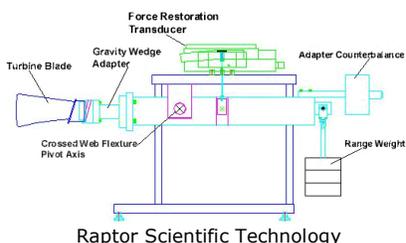
Most manufacturers use knife-edge pivots and strain gauge load cells.



Traditional Technology

Accuracy is limited by the dynamic range of load cells;

knife-edge pivots are easily damaged and wear over time. Raptor Scientific instruments use crossed-web flexure pivots and force restoration technology, resulting in instruments which are at least 10 times more accurate than other methods and are also more resistant to damage in production environment.



Types of Moment Weight Scales

Raptor Scientific manufactures 2 different series of moment weight scales.

MW Series are our high accuracy single axis moment weight scales. The MW700 is specifically designed to meet the needs of the power generation industry.

MW40KF and MW904F are high accuracy tri-axis moment weight scales.

Radius Compensation

Most moment weight scales require that the blade be fixtured at the exact same radius as the blade has in the engine. Since our system measures both weight and moment, the computer can compensate for blade radius.

Adaptors

Raptor Scientific Gravity Wedge Blade Adaptors (patented technology) are more repeatable and easier to use than any other style of adaptor. The unique slanted aperture guides the blade into position and the lower wedge clamps the blade at its Z-plane. Repeatability of better than 1 part in 100,000 is obtained with these adaptors.

Blade Distribution Software

After all the blades have been measured, our blade distribution software will distribute the set in a pattern that minimizes the overall rotor unbalance. The unbalance of the hub can be entered and the blades will be distributed to correct for the hub unbalance.

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

Typical Blade Application	Aero Turbine					Aero Fan	
	MW900	MW5K	MW12K	MW20K	MW28K	MW904F	MW40KF
Single Axis or Tri-Axis Scales	Single	Single	Single	Single	Single	Tri	Tri
Maximum Weight of Blade and Tooling (lb)	30	30	60	100	100	50	150
Maximum Radial Moment that can be Measured (oz-in)	900	5,000	12,000	20,000	28,000	Unlimited	29,000
Readout Sensitivity (oz-in)	0.01	0.01	0.05	0.1	0.1	0.07	0.02
Linearity (% of blade value)	0.03%	0.03%	0.03%	0.03%	0.03%	N/A	N/A