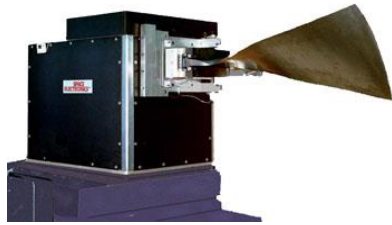


# MW40KF

## Tri-Axis Moment Weight Scale



### Product Overview

For measuring large blades, the model MW40KF Tri-Axis Moment Weight Scale provides the most accurate measurement combined with the most ergonomic loading and unloading.

This remarkable instrument is at least 20 times more accurate than conventional 3-axis moment weight scales, with a sensitivity of 1 part in a million!

The MW40KF automatically measures all three moment weight values (radial, axial, and tangential).

### Basic Concept

Conventional scales use a pair of knife-edges which are oriented at right angles. We use a spherical

gas bearing which provides a frictionless pivot with a center of rotation which only varies a few microns. There is no wear in this pivot. It retains its full accuracy for 30 years or more, and requires no maintenance.

Conventional moment weight scales use strain gage load cells to measure moment. We use force restoration technology, which eliminates mechanical non-linearity and results in a signal to noise ratio which is 1,000 times better than a strain gage load cell. The error in comparing blades to a master blade is 0.0003% of full scale.

### Automation and Ergonomics

*No Sliding Range Weights* - A range weight system within the scale automatically lowers the correct weight on the moment beam, resulting in greatly increased dynamic range. It is not necessary to counterbalance the adapter before making a measurement. The scale first measures the moment due to the adapter, and then measures the moment with the blade installed.

*Automatic blade rotation* - The scale rotates the blade 90 degrees in order to measure the 3rd axis of the blade automatically.

*Vertical Loading of Blades* - On conventional moment weight scales, the blade is loaded horizontally in the adapter. The clamping mechanism alters the leveling of the blade and the root position. On our scale, a hinged adapter allows the blade to be inserted while it is in a vertical position. The blade then hangs straight down, allowing gravity to press the blade root against the adapter. When the blade is clamped, it retains its correct position.

### Adapters

Raptor Scientific manufactures highly repeatable adapters that improve performance of any moment weight scale. Our technology allows the operator to make full use of the scale accuracy. Our adapters are more consistent and easier to use than any other style of adapters.

## General Technical Specifications – MW40KF

Maximum Weight (including tooling) .....	150 lb
Range of Radial Blade Moment That Can Be Measured .....	0 to 19,000 oz-in
Maximum Tangential / Axial Moment That Can Be Measured .....	+/- 1,000 oz-in
Readout Sensitivity .....	0.02 oz-in
Moment Linearity .....	0.1 oz-in
Total Radial Moment Measuring Error (1) .....	0.2 oz-in
Total Tangential / Axial Moment Measuring Error (1) .....	0.1 oz-in
Nominal Mounting Radius Distance .....	7.8745 inches

(1) Using master blade to set reference. Tooling error is not included.