

## THE BENEFITS



Lion Precision SEA system is used to measure and analyze the spindle's dynamic performance:

- Synchronous error, asynchronous error, thermal drift and vibration analysis.
- Spindle optimization can be achieved based on SEA system data as it detects errors and can provide a platform for continuous improvement

# SPINDLE DYNAMIC PERFORMANCE MEASUREMENT FOR A SPINDLE MANUFACTURER

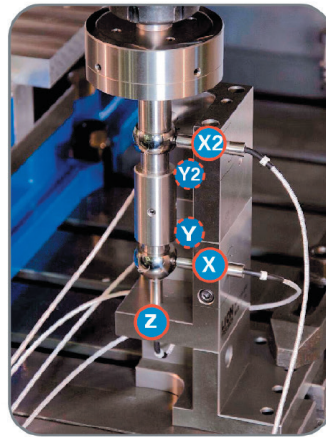
## LION PRECISION TEST

Protocol uses capacitive sensors to measure the spindle dynamic displacement in three directions. Five Lion Precision sensors are mounted around the masterball in X, Y, X2, Y2, and Z directions, and seven Lion Precision temperature sensors are attached to various points on the spindle and machine. The displacement data is transferred to the SEA software, then processed and calculated. The spindle performance will be shown with plots and values ready for inspection.

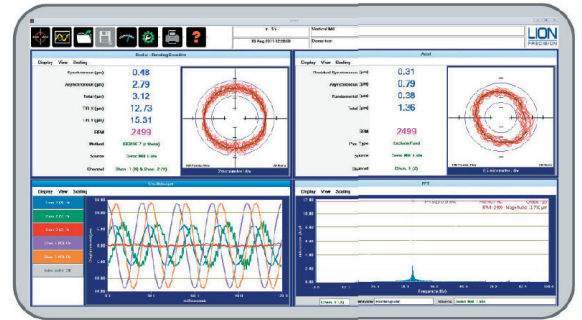
## There are ten main functions:

- Radial rotating sensitive direction
- Radial fixed sensitive direction
- Tilt fixed sensitive direction
- Axial error motion
- Thermal stability
- Shift vs. RPM
- FFT analysis
- Oscilloscope display
- Automated test sequencing

# THE SOLUTION



Note: Two of the sensors (Y Y2) are located behind the dual-masterball target.



## Five Precision Probes

Used to simultaneously measure all five error motions in a precision spindle.

**SPINDLE DYNAMIC PERFORMANCE ANALYSIS** is very useful in spindle design and manufacturing. It is important to know the dynamic performance of the spindle to evaluate and optimize the design. With this data the spindle's reliability and performance can be improved.

The Lion Precision SEA system has helped many companies increase the performance and sales of their products. Lion Precision SEA system can be used for dynamic rotary analysis in other applications: Aerospace, bearing analysis, rotary stages, precision grinding and microscopes.

## Ordering Information

Please contact Lion Precision for ordering information.

We can be reached via email at [infolionprecision@carlisleit.com](mailto:infolionprecision@carlisleit.com), or via telephone at (651)-484-6544.